

The National Locksmith®

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NEW!!
Code Card Software
— see pages 93-93 —

February 1996
Volume 67, No. 2

Clash of The Titans

page 40



also this month...

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- **THROUGH THE EYES OF THE DISABLED**page 64
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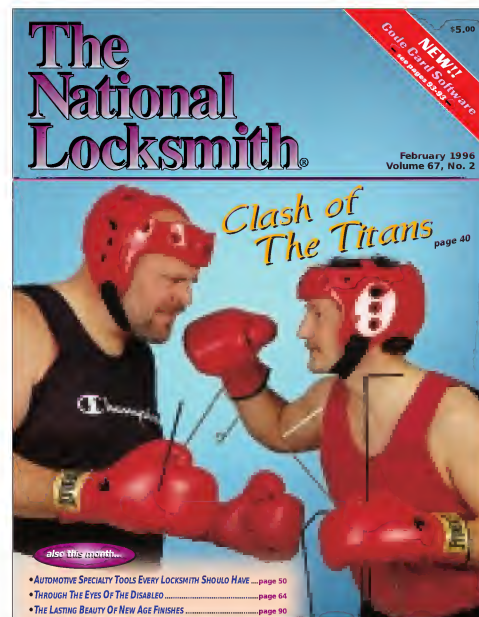
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On The Cover

After their grueling ordeal, find out which of these two industry giants is still standing.



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Commentary

Unfortunately, we must again say goodbye to a leading member of the locksmith industry. Jim DeForrest, founder of American Lock & Supply Co., passed away recently. Jim may be gone now, but the impact he made on our industry will be felt for many years into the future. He integrated many innovations into his business that helped change the nature of both locksmithing and locksmith distribution. Our condolences to Jim's family and friends.

I would like to take a moment and thank the subscriber from Florida who was travelling through Chicago around the holidays. Unbeknownst to me, he delivered a large sack of Florida grapefruit to the ravenous hordes here, and we surely did appreciate it. Thank you!

Unfortunately, I was on the phone and didn't know a reader had stopped in, so that kind soul didn't get a tour of our offices. But if you are ever in our neck of the woods, about 20 minutes west of O'Hare airport, please feel free to stop in and introduce yourself. We'd be pleased to meet you!

Greg Mango, newly appointed Managing Editor of *The National Locksmith*, is now in place in our office here, and you can read his first Mango's Message in this issue. If you've got ideas for articles, feel free to call either myself or Greg. We can be reached at 708-837-2044. Or E-Mail us at natllock@aol.com. Speaking of E-Mail, we have been running a very lively E-Mail list over the Internet. If you have a computer and a modem, you can get started. Simply get an Internet service and E-Mail me your own E-Mail address and I will sign you up. Almost everyday, you'll find interesting and helpful information in your mailbox.

And before I stop harping on the topic of computers, I am pleased to tell you that we have just introduced a computer program for locksmiths. The Insta-Card™ program allows you to print out a perfect working code card for your HPC 1200CM™ code machine. Simply enter the depths and spaces, and print your code card. This economical program will allow you to instantly create any card you might need, whether it be for a brand new code series or an old one. Talk about convenience! See pages 92 to 93.

Be very wary about giving your credit card number out over the phone to companies calling you with a sales pitch. I've had many complaints lately about overcharges by a former advertiser aggressively selling lock picks over the phone. We "invited" them out of the magazine due to this problem.

America Online: NATL LOCK
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Use the Internet address if you are not on AOL.

Marc Goldberg



Marc Goldberg
Editor/Publisher

**A new
Managing
Editor
and
a new
software
program**

F E B R U A R Y 1 9 9 6

Letters

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length.



In Memorium

Over the weekend of December 26, 1995, Jim DeForrest, founder of American Lock & Supply, one of the nation's leading distributors of security and door hardware, peacefully passed away.

In 1964, Mr. DeForrest along with a partner, formed American Lock & Supply after making the decision to leave their retail hardware store and devote their time exclusively to the wholesale distribution of security products. Relocation to Orange County in 1965 coincided with the county's growth explosion and accompanying demand for security products, creating tremendous opportunity and subsequent success. In 1976, Mr. DeForrest acquired sole ownership of the company in order to pursue his vision for the future of the company.

Drawing on his prior experience as a locksmith, Mr. DeForrest combined his understanding of the profession with a strong work ethic and a commitment to anticipate customer needs and respond with value-added services that had not previously existed. This unwavering dedication to service excellence, competitive pricing and an extensive inventory created a foundation of success for American Lock & Supply.

Mr. DeForrest is survived by his wife, Ida, and their four children and six grandchildren. A memorial service was held on January 20, 1996. The family requested that in lieu of flowers, donations be made to Mr. DeForrest's favorite charity, The Orangewood Children's Home, 401 The City Drive, Orange, CA 92668.



stay one step ahead. The high-end German automakers, which have been facing ever-more-rampant car-theft problems in the last few years, are getting particularly sophisticated.

BMW has recently introduced a notable system called Coded Driveaway Protection, which electronically integrates the ignition key, ignition switch, and engine-management system. Inside the ignition key is a small 15-millimeter-square microchip. As its complement, a coil-shaped working like a transformer, feeds electrical energy to the microchip. Instantaneously, the microchip verifies via a sequence of codes whether this particular key is authorized for this particular BMW. If verified, the key transmits a digitally coded signal to the engine-management system, allowing the car to be started.

The system also enters a new code (picked by a random generator from some 100-billion possibilities) into memory for the next time this particular key is used. Since the system needs no battery, it offers unlimited service life.

Continued on page 8

Automotive Outlook

I was sitting in a waiting room today, (dentist, you don't want to know) and I was reading Motor Trend magazine, and found this article. Thought it was interesting so I am sending it along so we can share it with all.

*Technologue: By Rik Paul
The Latest Moves In The Anti-Theft Game*

Car theft, at times, seems like a high-stakes, winner-take-all chess game between thieves, who are becoming ever more innovative and security-system designers, who are constantly trying to

The National Locksmith
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Streamwood, IL 60107
Attn: Editor

Continued from page 6

Every BMW comes with four keys programmed and coded at the factory. Each key is unique, and the system is able to identify each individual key authorized for a particular car. If one is lost, it can be canceled individually, without affecting the operation of the others. If the missing key turns up, the owner must present the entire set to the dealer before it's reactivated. To prevent unauthorized keys, owners can only obtain new ones by submitting proper identification to a BMW dealer, which will then order them. Because all keys can be accounted for, buyers of used BMW's can find out how many keys have been made and can cancel missing ones.

Michael S. Adams
Florida

Check This Out

When was the last time any locksmith has visited their local library and checked on locksmith books? So far I have found three books published publicly that have anything you could possibly want to know on the inner workings of locks along with information on how to make picks, how to pick locks, gain illegal entry, and information on how to make your own car tools.

The books were published in the '70's and '80's but a lot of the information can definitely be used today.

Needless to say I am filling out forms to get them removed from our libraries shelves and I hope that other people who are serious about the trade will join me in the effort.

People may still learn to do it without these books, but I guarantee that it will take them a lot longer. so why should anybody want to make it easier to be a criminal?

Charles Osborne
Virginia

LOCKSMITH

I thought the "commentary L-O-C-K-S-M-I-T-H" was very humorous and true! (August 1995, Commentary, page 5.) I have not run into everything from "L to H" but have hit a few letters. I would like your permission to reprint this commentary on cards or 8-1/2" x 11" forms for handouts, with credits to

the author of course. I have enclosed a post paid card for your reply. I think *The National Locksmith* is a super magazine and I have saved every one since I first took out my subscription.

Tom Seager
Michigan

Editor's Note: Tom, you're more than welcome to use and pass around the L-O-C-K-S-M-I-T-H Commentary. All we ask is that you include "From The National Locksmith" somewhere on the page.

Certified Locksmith

Had an interesting meeting with one of our local "Rubbish Men" (tow truck owner) yesterday, he informed me that he was now "Certified and bonded" to be a Locksmith. (I had earlier called him a "Scab.") I asked him what that meant and he commenced to tell me that he was qualified to now do all sorts of things, such as open cars, pick locks, make keys.

I asked him how he was going to "Make a key." He never did get my point and a few other things that a "Certified Locksmith" might do.

I said that was good, all this time there was about four city police officers, my boss, and some of the security officers for the college listening. I then asked him to follow me out to my university truck and show me how to get into it. It is an old Chevy S-10, with the passenger side linkage disconnected purposely. I told him I couldn't get it open. He proceeds to pull out his "slim jim" and start jabbing it down inside the door.

I know he won't be able to get the door open with any linkage tool let alone a slim jim. I then asked him to show me how to impression a key for the passenger door and he says, "Well, I ain't been shown how to do that."

I said, then how do you get off coming in here and passing around your scratch pads and pens that says your a "Certified Locksmith?" By that time all the officers were chuckling and one said (in jest) I'll make sure to call him out the next time we need a "Certified Locksmith." I know there is a lot of this going on around the country, but

its pretty bad here in good old Springfield, Missouri.

Well, enough dribble, hope you get as good a chuckle as we did from this "Certified Locksmith" tale...

Richard Solomon
E Mail

There's More To Wireless

I have only been a subscriber for a short time, but I was very surprised to find an electronic security section devoted to the alarm business. Being a lock and alarm company I was a little troubled by the fact that the articles are written by ITI. While ITI makes a very good product, it is very hard (at least in my area) to become an ITI dealer. I thought your readers should know that ITI only sells direct to it's dealers, that are given a territory so not everyone can even get the product. The other problem I see is that while many more companies are starting to use wireless products, wired type systems are still more common, and maybe should be talked about more in the articles.

Since the articles talk only about ITI products, the readers will find that some of the features talked about in the systems are only available with ITI products. I think it would be nice to find out more about the main stream alarm business and have articles devoted to that, not one manufacturers view.

Thank you for letting me voice my opinion, and I hope you will make your readers aware of this situation.

Chris Peacock, CPL
New York

A Book Is Found

Editor's Note: In December's Letters column Jay Nelson requested information on where he could find the book "Story Locks." Shortly after publication we received a phone call from *The National Locksmith* technical writer Jack Roberts. Jack is the author of "The National Locksmith Guide To: Antique Padlocks."

According to Jack, the book Jay is looking for is available from Lee Jacobs Publications, P.O. Box 382, Pomeroy, OH 45769.

Thanks Jack!

TLN

SEROOGY SPEAKS

A final note from Tom

It was just over three years ago that Marc Goldberg asked me to join *The National Locksmith*.



by
Tom Seroogy

At the time, despite a decent locksmith background, breaking into the magazine industry was a little tough for me. Having attended Marquette University, College of Journalism, and having been a locksmith for nine years, I was well prepared for the writing and technical requirements of the Managing Editor position that Marc Goldberg had offered.

What I was unprepared for, however, was having to rub shoulders

with the movers and shakers of the locksmith industry. At first this seemed a little intimidating. How was I, a locksmith, going to fit in with people who made decisions that effect an entire industry.

As it was, however, not only was I accepted, but because I was a locksmith, they wanted to hear from me. Apparently, the locksmith does matter and is part of the decision making process of even the largest hardware company.

Needless to say that the following three years were ones of unparalleled change. At no other time in the history of this magazine has so much happened in so little time. Electronics, team concepts, levels, customer satisfaction, voice mail, e mail, VATS, PATS, MATS, MRD, ADA...

The magazine flip-flopped on the percentage of advertising vs. editorial, offering more editorial than ads. The editorial is more informative and on topics that really affect us as locksmiths. And don't forget the total revamping of the magazine's appearance. I believe it was *The National Locksmith* that Canon was looking at when they created the commercial that hyped "Image Is Everything."

Of course, none of these changes would have happened without the input of you, our readers. Your constant support, direction and chastisement have pushed us to become the number one magazine in our trade. I thank all of you, and those on staff at *The National Locksmith* for letting me be a part of that.

Well, they say that all good things must end, and, so, I say good-bye to you as Managing Editor of *The National Locksmith*. I'm not leaving the industry, however. I will now be saying hello to you as Aftermarket Product Manager of Strattec Security Corp. I will still be teaching you and keeping you apprised of the latest in automotive servicing.

My replacement is no stranger to you or to locksmithing - Greg Mango. Greg, formerly Managing Editor of *Reed's Security Reporter*, will easily fill my shoes.

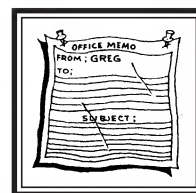
Greg, I believe that you're the one to take this magazine to the next level of professionalism. You have vision and a commitment to the locksmith - Good Luck!

In closing, I want to thank Marc Goldberg and all the staff at *The National Locksmith*. Thank you for the experiences, thank you for all the fun, and thank you for the friendship. Good luck all, and God bless. **TLS**

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Mango's Message



Greg Mango
Managing Editor

Back In The Saddle

I'm sure many of you are asking yourself, Who is this Mango character? Where did he come from? Is he a locksmith? How will this change affect the magazine?

Some of you will already know the answers to these questions and recognize this "Mango's Message" column right off. As the past Editor of *Reed's Security Reporter* magazine, you were subjected to my homely face and cantankerous writing every month. Now even more of you will be subjected to the same torture. (And you thought you were free from the chains. Ha!)

Now to address the two most important questions those that don't know me will probably have. Is he a locksmith? Yes, I am a locksmith. I was active in the service aspect of this industry for ten years before joining Bill Reed and starting *Reed's Security Reporter*. I am probably best known as a safe technician only because prior to *Reed's Security Reporter*, I wrote safe service articles for Safe & Vault Technology (SAVTA) as well as *The Locksmith Ledger* for several years. Safe related topics however, are only a portion of my experience. I was very fortunate to have worked for two of the largest lock & safe companies in Texas, while learning the trade and paying my dues. This experience exposed me to just about every facet of this industry. Safe servicing just happened to be a personal passion.

How will this change affect this magazine? As with any change, it will have an effect. For most, trepidation supersedes change. The uncertainty of what lies ahead is usually unsettling. Yes, there will be change. Over the course of the next few months, you will notice a gradual transformation of the over-all look and feel of this magazine. Will it evolve into *Reed's Security Reporter*? No, absolutely not. *The National Locksmith* will always have its own identity. The intent is to improve upon it today, not turn it into something of yesterday.

What changes can you expect? That, unfortunately, I can not divulge. There are competitors out there that would love to know what we have planned. I can tell you, however, that it's going to be interesting. The writers you have come to know and love will still be here - I might just add a few new faces. The technical articles you've come to expect will still be here - I might just add a few more. The layout and design will change, but only slightly.

The National Locksmith has made tremendous strides over the last couple years and I directly attribute much of that change to Tom Seroogy, and the production staff. Tom did an outstanding job as Managing Editor and certainly left his mark on this magazine. It's a tough job that few could do, and even fewer could do better. Tom has, without a doubt, been influential in the most dramatic improvement this publication has ever encountered since its inception. My only regret is that we never had the opportunity to work together before his departure. I wish him luck in his new venture at STRATTEC.

The production staff of Jim Darow, Edgar Shindelar and Jorge Carpio have also been very instrumental in the improved overall look of the magazine. The dramatically improved looks and overall feel is due to them. They are an enthusiastic, creative, very talented team. My goal is to extract even more of their talent and import it into the pages of this magazine. (I don't really have to do that, that's Jim's job. I just like to think I'm important.)

Now that I have bored you to tears about who I am and what I plan, I must say that I am very excited to be a part of this team. I can't thank Marc Goldberg enough for the opportunity to once again do what I love most. Next month we'll get down to business and I'll have a real Mango's Message. I hate talking about myself. I'd rather be talking about someone else. Like someone ripping-off fellow locksmiths. Or maybe about a locksmith being sued. Or maybe... well, you'll just have to wait and see. See you then!!!



Reed Report



Bill Reed

Scatter Shooting while wondering whatever happened to ... Len White

- I am now booking seminars for 1996, but I must say what I say every year about this time - I only want to book 12 shows. That's spelled T-W-E-L-V-E, like in "one a month". Get in touch with me now or call Steve Young. We are planning some new and exciting programs.
- I want to congratulate Marc Goldberg for his in-depth story in the December issue on lock shops and where they're headed (page 120). Over the past six months I have been doing quite a number of surveys myself, but I am saving the results for my seminars and keynote addresses. However, I was real pleased to see Marc's figures agree with mine. Notice that most shops have five employees or more. That's very interesting because almost 50% of the locksmiths surveyed are "mobile" only. That was the biggest shocker to me. I felt there was about a 30 - 70 split with the shops leading. However, of the walk-in shops almost 50% have 1500 square feet or more. This says a lot for how far we have progressed over the years. What upset me the most? If you look on page 124 you'll see all the supplies and products locksmiths sell most. Key blanks - 86% No problem with that one. However, look down toward the bottom of the list. Personal defense products - 20% These are impulse items and VERY popular right now. Get more involved, even if you are mobile only. Companies like Mace have display racks easy to carry in your van. I'm also disappointed in electronic items and safes being on the bottom half of the list. Remember, our growth comes from these products. Learn about them, service them, sell them. The mass-merchandisers won't.
- I visited the All-Lock plant in Selma, Alabama recently and was totally shocked at their size. BIG company. They're doing a tremendous job for locksmiths and plan to do even more in the future. Keep an eye on All-Lock. They just might become the auto lock capital of the world.
- I also had a chance to visit with Bob Cook of Securitron. They have recently purchased Security 777 from Dr. Alois Crepensek. I got to know the doctor over the past 12 or 14 years, and he has been a very good friend. I'm pleased he found someone like Securitron to take over his product. As most of you know I have always thought this to be an excellent high-security lock. I don't know what his plans are for the locksmith, but watch for an opportunity to get involved with them and do it. I promise you it will mean big bucks, and it will be a product you will be proud to sell.
- Have you joined ALOA yet? Well if not, I want to urge each of you to do so. They're working hard for you and the industry we all love. Craziest thing you can say is "it's not worth the price." I just wish we could figure out where we would be today without ALOA. Much, much lower on the totem pole, I promise. I personally plan to get more involved with them in 1996.
- Orders are being taken for "Hankman #5." This is Hank Spicer's newest book and will include the '96 Taurus & Mercury Sable (New Ford 8-Cut PATS Locks), '95-'96 Mustang (10-cut system with responder in key-head), '95-'96 Hyundai Elantra and Accent. This new Hankman Series started with Volume 1 in 1993. Remember, if your book doesn't say "Hankman" you've got the old, outdated stuff. Call Steve Young at (800) 356-0136 today and give him your order. If you don't yet have volumes 1-4 (Hankman) you can get those from him, too.

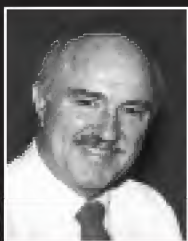
Yours for Better Security,

Bill Reed

TNL



Opening A Mosler Bank Vault



by Carl Cloud

***Manipulate,
drill the door,
or walk through the
wall; three methods
for opening a vault.
Carl opens a B rate
wall construction
bank vault.***

About 15 years ago I watched a bank being constructed. It was near my shop and I passed the building site a number of times every day. I saw the step by step progress in its creation. Of special interest to me was the building of the vault. After the pouring of the buildings concrete foundation and flooring, the vault was the next item of construction.

A honey comb of reinforcement bars shaped the walls and ceiling. Wooden panels were braced to form the ceiling and the four inner and outer walls. The following day, a row of trucks furnished concrete to be pumped into the forms. A couple of days later, the wooden forms were removed and there stood a small, but very strong room. The walls were 18" of high density reinforced concrete. If the entire bank collapsed, this room would still be standing!

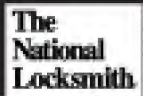
This construction of a vault has always been my conception of how vaults were built. A massive wall that made penetration a long tedious job or virtually impossible. As you will see in this article, things have changed!

The Western Federal Bank had moved from their location on the ground floor of a 14 story building. The new tenant was also in the finance business and needed the use of the bank vault. One problem, the vault was closed and locked. No one at Western Federal could supply the last known combination.



1. Mosler bank vault door. Dual S&G vault locks and handle wheel mounted upon stainless panels. Door dimensions are 79" high and 38-3/8" wide.

I was contacted by the building management to bid the cost to open and make the vault door operational. (See photograph 1.) The door was very distinguishable with its raised stainless sections, dual locks and a six-spoke handle wheel. There wasn't a name, serial number or model tag to be found on the door or frame. I wasn't sure of the brand or the configuration of the locking mechanism. I took a Polaroid picture of the door and faxed it to Dave McOmie.



2. Total thickness of the door is 10-1/4". The stainless panel under the dials and handle wheel is stepped out from the door face 3-1/4".



3. Front view of the S&G locks and the six-spoked handle wheel.



4. The center section of the wheel pops out to reveal the bolt holding the wheel to the handle shaft.

Dave, who is the most knowledgeable person in the country when it comes to safe identification, didn't even blink. He faxed back not only the name, but copies from his photo files. What a wealth of information this guy is! O.K., what you are seeing in photographs one and two, is a Mosler vault door.

Photograph 3 is a front view of the stainless panel containing the two S&G 6500 vault locks and the handle wheel. Dave had a photo of this door with a key lock mounted between the two dials. The turning of the key, threw a bolt into a notch of the handle cam, locking the handle from turning. The bank name plate is the normal location for the Mosler name.

To drill this door from the front requires removing the raised stainless panel. This is not as difficult as it may appear. The large circular disk in the center of handle wheel pops out. (See photograph 3.) It is only held in place by three detent balls. (See photograph 4.) With the center removed, a large

nut holding the wheel to the handle shaft can be loosened. The wheel can then be pulled off the shaft. Unthreading the S&G logo disks from the dial centers will expose a dial securing screw. Remove the screw and pull off the dials. Those bullet shaped pins in the four corners of the panel are actually retaining nuts. Protect them from scratches and loosen with a small pair of pliers or vice grips. With these parts removed, the stainless panel can now be pulled from the door face.

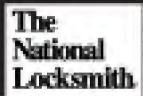
Removing the stainless panel and drilling for the locks was my initial plan. I submitted a one price bid for the entire job, at a price which I thought was quite reasonable. The building manager gasped at my bid and wouldn't consider my charge for opening the vault! Three days passed and I contacted the manager, just to see what was happening. Apparently, no one else had offered a better price and we were back to negotiating the vault opening cost.

I had seen a set of the building floor plans of the bank and vault area. It illustrated the vault walls to be approximately 12" thick. An end wall was shared with an adjoining utility



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room. I had previously contracted vault work with a concrete coring company. A telephone call confirmed my price for coring and repairing an 18" hole through the vault wall from the utility room side. My plan; I'll crawl through the hole and open the Mosler vault door from the inside.

I offered a new lower opening charge. It included coring and repairing the wall, opening the vault door, servicing the locks and setting a new combination. They were still haggling the cost! I made my last and final offer. If they, the building management, repaired the wall, I'll deduct two hundred dollars from my bid. They finally agreed!

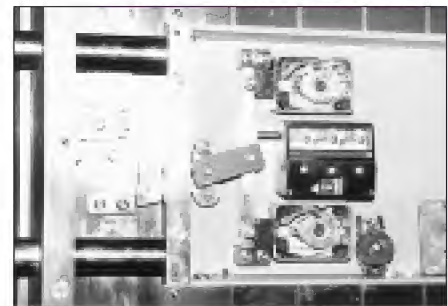
I met Joe from the coring company in front of the bank building a 7 a.m. sharp. In the utility room, we found the walls were finished with plaster board. We selected a spot on the wall for the coring entry. Joe punched a hole through the plaster board with a stubby sledge hammer. To our surprise, we didn't find a concrete wall. Instead, we found about 4" of what looked like porous concrete. This material was very soft. It crushed and broke away very easily with the hammer. We opened the hole to about



5. The Mosler door standing open. A thin framed glass door is hinged to the right.

a 12" diameter and dug out the soft material. Behind the material was a solid wall. This has to be the outer wall of the bank vault.

Joe smacked the wall with the sledge hammer. He looked at me and



6. A close up view of the two combination locks and the triple time clock. All parts are in the locked position.

said, "This isn't concrete, it's steel!" We both concluded the concrete vault wall must have been formed with a thin steel shell. To get to the concrete wall, we will have to cut away the steel. We brought in the cutting torch. The hole through the plaster board was opened to a size of 18"x30". Joe torched a 2" hole into the corner of the opening.

We couldn't see anything by looking through the hole. I picked up a broom and pushed the handle into the hole, expecting it to bang against the concrete wall. Instead, it entered the hole to the hilt of the broom end! How can this be? We couldn't have missed the entire vault! While Joe was opening the size of the hole, I checked the switches within the electrical panel. I threw a switch marked 'vault interior.' Joe said, "You won't believe this, there's light coming through the hole!"

Peering through the enlarged hole was a view of the vault's interior! We looked at each other with our mouths hanging open. The steel plate was 1/2" thick. This Mosler bank vault had 'B' rated walls! The 18"x30" section was torched out of the steel wall. After cooling the opening with water, I slipped through the wall and into the interior of the vault.

In a wall mounted key cabinet, I found the keys for the day gate, the inspection cover of the vault door and winding keys for the time clocks. Opening the vault was a simple matter of removing a back cover of the S&G vault lock, pulling out the lever and retracting the lock bolt. I yelled at Joe to turn the handle wheel and watched the locking bolts withdraw. A nudge against the door and it swung open. (See photograph 5.)

Photograph six is a close-up of the locking mechanism. The door bolts

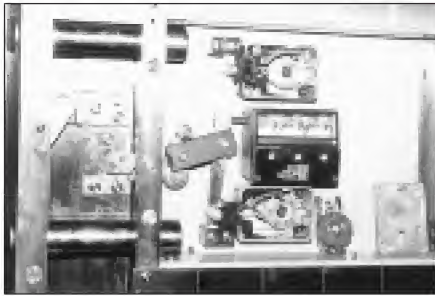


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7. The top combination lock is in the open position. The snubber bar has been pivoted and the door locking bolts are retracted.

are fully extended to the locked position. Both S&G vault locks are in the locked mode. Photograph seven shows the top combination lock with its bolt retracted. This movement pivots the connecting bar between the two locks and raises the snubber bar. This releases the carriage bar for the retraction of the doors locking bolts.

A closer look at the vault interior, showed all the walls were covered with a thin plaster board. Tapping on the remaining three walls emitted the same sound as the penetrated wall. (See photograph 8.) My assumption was, all the walls were constructed with the 1/2" steel plate. What happened to the 12" walls shown in floor plans? I don't know!

After some investigating, I have answered some of my bank vault questions. The I.S.O. (Insurance Service Office) originally specified the requirements for building bank vaults - like the thick wall vault I watched being constructed. During the early 1980's, the Bank Protection Act deregulated the Banks and Saving & Loan institutions. They were no longer under strict building requirements.

In April 1980, Underwriters Laboratories published the first set of standards for prefabricated concrete panels to be used in the constructions of bank vaults. The prefabricated sections are referred to as 'Modular Panels.' The panels are constructed of a high P.S.I. (pounds per square inch) concrete. Some are rated as high as 17,000 P.S.I., as compared to standard concrete of 3000 P.S.I. The concrete is backed up with various thickness of steel plate, usually from 1/2" to a full 1".

The panels, and the vault doors are tested by U.L. and labeled into a 'Class.' The testing is similar to the TL tests for safes. The class is determined by the length of time withstanding



8. From the interior of the vault. The 18"x30" opening cut through the vault wall. Plaster board covered the 1/2" thick walls.

attack by common mechanical tools, electric tools, cutting torches or any combination of these devices.

The lowest label is a Class M - 1/4 hour resistance.

Followed by Class 1 - hour, Class 2 - 1 hour, and Class 3 - 2 hour

These requirements do not cover attacks with the burning bar (thermal lance) or explosives.

The 'Burglary Resistant Vault Doors and Modular Panels' regulations number U.L. 608, list the various classes and the limitations used in the testing. For example, the maximum amount of gas consumed in the oxy-fuel cutting torches or the maximum electric drill motor chuck size. Time clock locking combined with a Group 1 or 1R combination locks are a requirement for all classes.

Underwriters Laboratories does not specify the construction of modular panels. They just conduct the testing and award classification labels. Therefore, panel construction and composite materials will vary among the manufacturers. Basically, the panels are sheets of steel, lined with composite concrete built in sections 2' wide and 7' high. The thickness will vary from 3" to 9", depending upon the U.L. class rating of the panel.

The panels can be assembled within an existing building. The sections, including the walls, floor and ceiling are either welded or bolted

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together. At a later date, it can be disassembled and removed. This type of vault construction is economical and can be used where the floor loading of the building will not sustain the excessive weight of a standard vault. The old 18" thick wall vaults are close to meeting the same fate as the dinosaurs, extinction.

The walls of this Mosler vault obviously were of the 'M' class, although I never found a U.L. label. The porous material that was broken away from the steel may have been a fire resistant substance. It certainly was not drill resistant, but it did emit a toxic odor when heated by the cutting torch. I wonder how many depositors would have withdrawn their money had they known how weak the vault was?

The over sized hole saws used by a concrete coring company have a diamond cutting edge. The saw is mounted into a fixture that is attached to the outer vault wall. An electric or hydraulic system pressure feeds the saw into the wall as a mist of water flushes away the cuttings.

A recent vault door malfunction of an operating bank involved coring the

wall. The walls of this vault were only 8" thick. To understand the toughness of these new composite modular walls, the cutting time for an 18" diameter hole took 10 hours!

When presented with the opportunity to open a bank vault, you only have a few options;

Manipulation. This should always be tested. With four wheels, this procedure may take a little while. Most of the vault locks I have tried to manipulate had very little or poor indications, but you may be better at manipulation than I am - it's worth a try.

An automatic dialer. Here is a great invention, if you can afford the cost of having one setting in its box while waiting for a plausible situation. Again, with four numbers to find, you should bring your cot, it's going to be a long couple of days. Or would you just leave your equipment unattended? Plus, these dialers aren't known to be proficient 100 percent of the time.

Drill the door. This is how real safe tech's do it! The Mosler door in this article only had a thickness of 3-3/4" from the door face to the lock case. Any decent drilling rig combined with

a few Strongarm carbide bits would have done the job. Sure, the handing of the locks and layout of door interior would be beneficial, but you should know these facts before attempting any type of opening. The option of drilling this Mosler door was voided when the opening price couldn't be negotiated.

Core the wall. If you don't have the equipment, knowledge or confidence to drill a vault door, coring is a relative cheap method of entering the old style vaults. Ask a coring company to inspect the job site and give you an estimate for coring and repair. The coring is the hard part of the job and a larger portion of your bid will go the cutting company. You'll only have a couple of hours in labor and you should be paid well for your portion of the service.

A note of information. A bank style vault may be used by a new tenant to secure valuables. If the vault is to be used as an office space, the door must be made inoperable or equipped with an inside release. Laws may vary between cities; check with your local Fire Marshall. **TNL**



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S E C U R I T Y C A F É

Nel-Tech's AC-1A Access Control



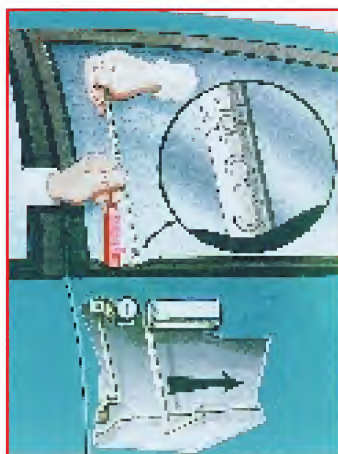
Nel-Tech's new AC-1A single door access control offers a wish list of flexible features and ease of installation. It is compatible with all Nel-Tech keypads including the weatherproof, lighted button, Stormpad 6SP.

When the correct code is entered at a keypad, the AC-1A will activate any electric strike, magnetic lock, or overhead door. The access code is easily changed using simple slide switches. An exit button can manually activate the timed relay control as well.

The AC-1A's clearly labeled connections and complete wiring diagrams simplify installation for those new to access control as well as the experienced installer. Toll-free technical support is also available.

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Most vehicles are opened from within the door cavity. These two high performers

together are able to open 80 percent of the over 850 lockout situations on the roads today. While Z-Tool® executes the greatest volume of openings, its sister Inverted Z-Tool® opens many of the toughest door cavity opening of the 90's. Both are equipped with depth guides which aid in opening those vehicles with small mechanisms available to manipulation. Together, they reduce the high number of lockout tools an automotive lockout technician would otherwise have to carry.

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simply by adding low cost option boards to any controller on the network. Up to 64 doors can be handled on a single RS-485 network.



The system is configured and managed by the user-friendly TAP-100 Software Program with pull-down menus. TAP-100 is provided free of charge to authorized Keri dealers. For 1 to 8 door

the dial and opening index. When connected to a camera and borescope, the i-glasses[] display the image on two LCD screens positioned in front of your eyes and creates the equivalent of an 80" giant screen focused at 11"! In addition to replacing the monitor in a modular borescope system, the i-glasses[] may be used to view from video sources (VCR and others) while listening in Hi-Fi stereo sound.

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Locknetics 301 + Delayed Egress System

Locknetics Security Engineering introduces the new 301+ Delayed Egress Locking System for medium security traffic control applications. The 301+ is an electromagnetic locking system that complies with NFPA 101 Life Safety Code for egress where medium security is required, as in nursing homes, retailers, libraries and museums.

The Delayed Egress System incorporates a unique, built-in detection technology, which eliminates the need for additional hardware such as hardwired exit bars or hardwired locks. The 301+ Microprocessor Controller is mounted on a 3-gang, flush-mounted panel incorporating a Locknetics



TouchEntry reader, for legal release and reset capabilities. Legal egress is granted by a valid TouchEntry Key applied to the Reader. When access control is desired, a 150 code keypad is also available.

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Keri Systems Networkable Access Control

Keri Systems has introduced a networkable access control system based on the PXL-100 Smart Entry Controller, with a complete line of controller Option Boards and new line of Proximity Readers. Keri's building block architecture allows the user to purchase only the functionally required to meet project requirements without cost-burdening the system with features that are not needed. Should requirements grow, the system can be upgraded or expanded

systems, a PC may be used but is not required. Instead, the system can be programmed using a remote hand held programmer with activity report printing on any 80 character serial printer.

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The controller can interface with most access control systems.

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New Key Machine Cutters By Gil-Ray Tools®



Gil-Ray Tools Inc. now has quality U.S. made replacement cutters for Taurus, HK and Bollini key duplicating machines. The GR-79MC cutter is a direct replacement for the Italian made Bollini cutters. It features a new strong tooth design, and is made from M3 type 2 High

Speed Steel to stay sharp longer.

Gil-Ray has also redesigned several new precision cutter wheels that boast longer service for the following imported machines: Borkey, Orion, Rytan and Silca. They feature precision ground edges for accurate key duplicating. Gil-Ray Tools sells direct to locksmiths through their cutter catalog.

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CorKey TriSec 1000 Series Locks

The TriSec 1000 is a card operated completely mechanical lock available in office, classroom, and storeroom functions.

Codes change instantaneously with management's TriSec change tools. Installs in existing cylindrical door lock cut-out. Requires no batteries, electrical connections, or computer interface.

Meets or exceeds all ADA specifications. Optional 1" tubular deadbolt interconnected to the latch for single



action exit. The TriSec 1000 lockset is less than half the price of comparable electronic locks.

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Streamlight Flashlights Feature Non-Slip Rubber Grip

Streamlight, Inc., has re-

introduced its line of Krypton D-cell flashlights that now feature a non-slip, elastomeric rubber grip to enhance comfort and enable a sturdier grasp during use.

The Krypton line features four models which range in length from 10.6" to 17.5" and in brightness from 3,500 to 15,000 candlepower.

Each light in the Krypton line is constructed with a machine tooled, aircraft quality aluminum casing and features an unbreakable Lexan® lens. The unit is protected by a moisture-resistant O-ring seal, and is anodized inside and out against corrosion.

Powered by two to five D-cell batteries, the Krypton line provides as many as 12 to 16 hours of continuous run time with a variable spot-to-flood beam. The Krypton bulb is 300 percent brighter than that of a conventional flashlight, and a shock-



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protected spare bulb is included in the end cap.

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Yale Square Bolt Exit Device



Yale Security Inc. introduces the Square Bolt exit device. This series of devices has an innovative patent pending deadbolt which vastly improves security, while providing the life safety requirements of an exit device.

The 1" high bolt is constructed of a high grade, heat treated, corrosion resistant nickel steel alloy. It's flat surface and 3/4" throw

provides 10 times the strength required by the ANSI A156.3 security test, making it extremely resistant to physical attacks.

The Square Bolt exit device is available with both wide (7150 series) and narrow (7250M series) cases in standard architectural finishes with a full range of exterior trim options. It is ideal where added security is as important as life safety.

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Reading Body Works Enameled Ladder Racks

Reading Body Works is pleased to announce that their pickup ladder rack is now available in black enamel finish.

Constructed of two-sided A-60 zinc coated galvanized steel and aluminum tubing, the ladder rack is durable enough to handle



your ladder hauling needs. For ultimate rust and corrosion protection, Reading uses their exclusive Lectro-Life immersion priming and Power Coat electrostatic power painting.

In the Lectro-Life process, the ladder racks are submerged into a vat of electrically charged primer, which grips the metal. The Power Coat process evenly applies black paint using electrically charged paint particles. A final baking ensures a smooth durable finish of high-gloss black enamel.

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WeslockNational Offers Sonic®

WeslockNational Inc., announces the availability of Sonic knobsets in a cylindrical lockset application.

Sonic cylindrical locksets are available in WeslockNational's 600 Series product line in keylock, privacy and passage functions, plus vestibule keylock, patio or exterior

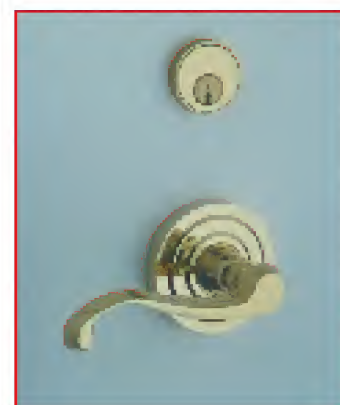


keyless lock, and dummy passage set functions. In addition to Polished Brass and Antique Brass finishes, the 600 Series Sonic can also be ordered in Polished Chrome and Satin Chrome.

WeslockNational's 600 Series cylindrical locksets offer a lifetime mechanical warranty. Panic-Proof keylocks — one turn of interior knob unlocks and opens the door. Locksets have concealed screws, which are covered by a snap-on rosette. Removable knobs prevent scratching during installation. 5-pin cylinder. Grade II cylindrical lock standards. Adjustable latches with fixed or removable latch faceplates. Fits standard door preps, 1-3/4" to 2-1/8" cross hole and 1" edge hole. Adjusts to door thickness from 1-3/8" to 1-3/4". Retail four-packs and warehouse six-packs available.

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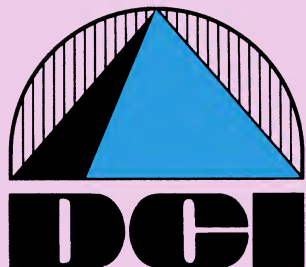
Schlage's L-Mediterranean Series



Schlage Lock Company's new L-Mediterranean Series levers, shown here in the Asti design and bright brass ULTIMA finish, combine the L-Series extra heavy-duty strength and endurance with the elegant handleset styles found in fine residences. The L-Mediterranean Series provides attractive, maximum security for upscale offices, stores, retail shops, hotels, condominiums and other commercial structures. Also available in Avanti and Merano designs.

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GENERAL SECURITY

Test Article #112

Installing Track Application Closers

by Chris Freeman

Track surface closer applications have features that make them more vandal-resistant than the regular and top jamb installations discussed in previous articles. Unlike regular and top jamb installations, track applications have a narrow projection, but do not have a projecting arm.

The "mechanics" of track applications are very different from any installation previously discussed. Regular, top jamb and parallel arm applications all utilize a "double-levered arm," which offers certain mechanical advantages during operation of the closer. The arm has two main parts (levers) that are attached and pivot at the ends. (See illustration 1.)



1. Double lever arm typical of most door closers.

The track arm is comprised of only one lever. (See illustration 2.) Therefore, it lacks the mechanical advantage common to double-lever arms. As a result, track applications are typically "upsized" by two closer sizes to compensate. For example, a size 6 track arm closer application will typically generate approximately the same closing force as a size 4 regular arm closer installation.

Track applications typically require preloading of the arm by 45°. The preloading is necessary to assure that the function of the closer is correct

relative to the sweep, latch, backcheck and/or delayed action ranges. Again, preloading and "upsizing" are necessary, as the mechanics of the track arm are significantly different in comparison to regular, top jamb or parallel arm applications. It is important to follow the specific manufacturer's recommendations regarding applications and sizing for track mounts.

Some manufacturers build "special" closers that can be used *only* for track mount, but most manufacturers use universal closers that require upsizing and preloading when installed in track applications.

Cam And Roller Technology

A new and different alternative in track closers, based on new technology, is also available. Typical surface closers are of the rack and pinion style design. The new track closers are based on a cam and roller design. A highly efficient technology that overcomes the typical disadvantages of track mount, providing operation that is similar to regular arm type closer applications. These closers do not usually require the 45° preloading or upsizing normally associated with track applications.

Cam-and-roller-based closers can offer distinct advantages when installed on doors that are required to meet barrier-free opening force restrictions.

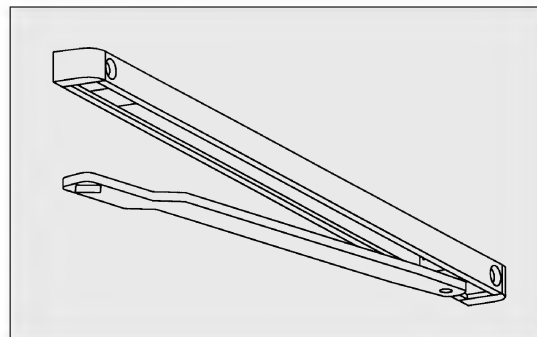
Standard rack and pinion track mount closers, with their relative lack of efficiency, have difficulty meeting barrier-free restrictions while at the same time generating enough force to close and latch the door. Cam and roller track closers offer a distinct advantage in this area, though they generally carry a slight cost premium over traditional track closers.

Installation Considerations

The single-lever design of the track style arm makes the application less

forgiving to faulty installation than regular, top jamb or parallel arm installations. It is particularly important to make sure the installation is accurately performed, as improper installation can cause severe binding of the track components, resulting in a condition that could keep the door from closing.

Some track closers incorporate bumpers or spring stops in the track. In some instances, the closer and track can be installed to provide a limiting stop for the door. The manufacturer's recommendation should always be referenced before installing a closer in this manner, as such an installation may otherwise result in damage. Additionally, a separate method of limiting stop



2. Unlike the typical closer arm, the track is comprised of only one lever.

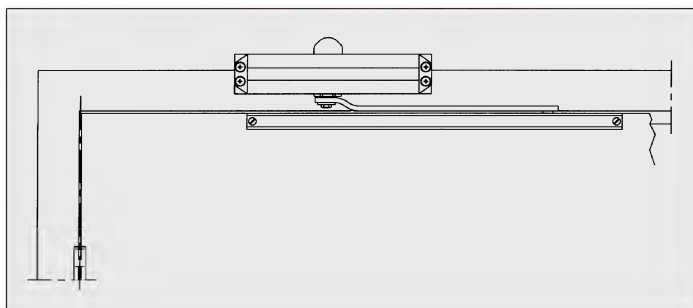
should always be considered in abusive applications.

Adequate reinforcement of the door and frame is an important concern as outlined in previous articles. This is particularly important if the closer and track will provide a stop.

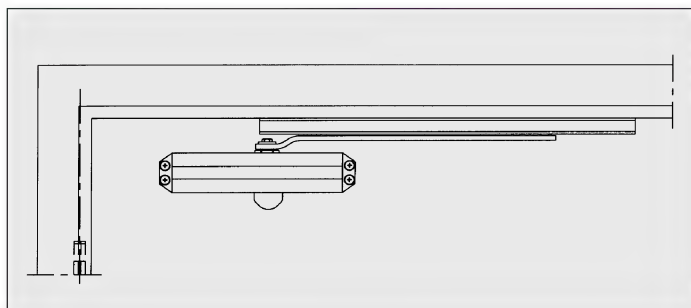
Additionally, particular care must be given concerning secure attachment of components on labeled doors and frames.

Track Mount Applications

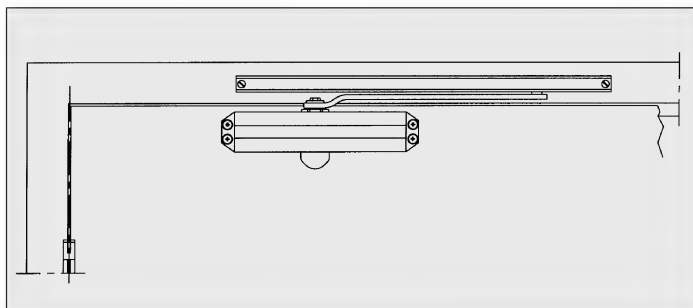
Various types of track mount applications are available: Standard track application (T) places the closer on the frame and the track on the door



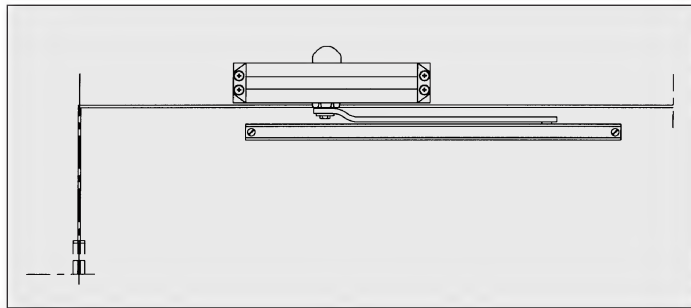
3. The standard track or "T" installation.



5. The "PT" Push Side installation.



4. The "J T" installation.



6. The Flush Transom or "FT" installation.

on the pull side of the opening. (See *illustration 3.*) This application is a good choice when the door opens 90° against an adjacent wall. The narrow track projection eliminates possible conflict that can occur with the wall when the closer is mounted on the door. Standard track application typically requires a minimum 2" frame face and/or use of a mounting plate to install the closer. The JT application is the inverse of the standard track (T) mount. (See *illustration 4.*) The closer is mounted on the door and the track on the frame face on the pull side of the opening. This application is a good choice where a narrow frame face prohibits use of the standard T

application. It is a poor choice where the projection of the closer may conflict with an adjacent wall as noted above.

Push side (PT) application attaches the track channel to the stop and the closer to the face of the door on the push side of the opening. (See *illustration 5.*) Care must be taken to make sure there is sufficient top door rail for application of the closer. The PT application typically has a limited degree of door swing. It is preferable to use the T or JT applications when possible. Additionally, some manufacturers offer a track application (FT) for flush transom doors and frames. (See *illustration 6.*) This condition is

relatively uncommon, therefore this installation is rarely seen.

T Application Installation

Again, a poorly installed, or worn and damaged door and frame serve as a bad start to any closer installation. Therefore, it is important to initially evaluate the door and frame and correct any problems there may be before attempting installation of the closer.

Read all manufacturer's instructions thoroughly, remove all parts from the packaging and check to be sure they are complete and undamaged. If all is in order, proceed as follows:



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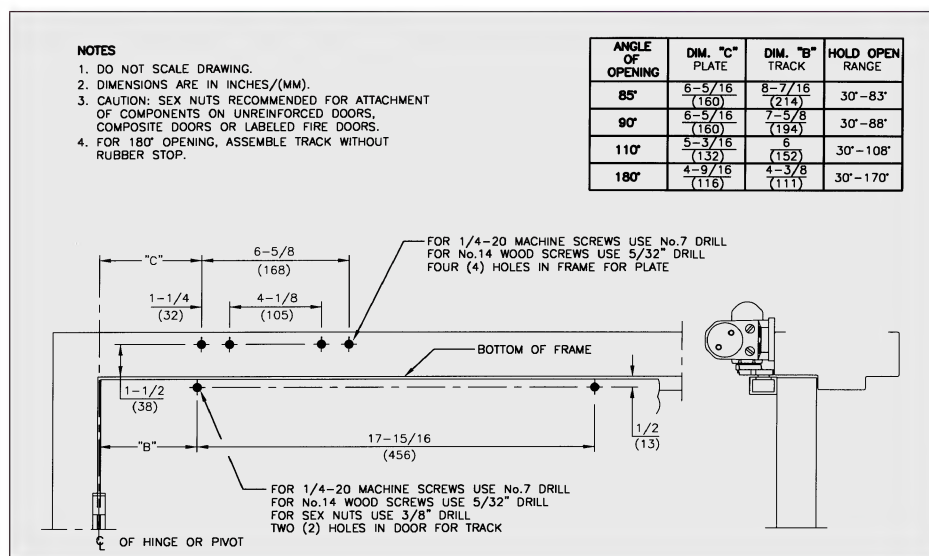
1. Determine the hand of the door. Machine the door and frame to accept the closer and track channel. A machining template with appropriate dimensional details is usually part of the instruction sheet. (See illustration 7.) Don't be creative. Closers are sophisticated products engineered for years of service, providing they are installed consistent with the dimensions furnished by the manufacturer.

Aluminum or hollow metal doors and frames typically have to be tapped to accept machine screws. As discussed previously, sex nuts are recommended for attachment of components on unreinforced, composite or labeled fire doors.

2. If using a mounting plate, install it. Mount the closer to the face of the door or the plate. With track arm mount, sweep and latch valves should be facing away from the hinges or pivots.

3. Assemble the track and attach to the door.

4. Attach the main arm to the closer spindle, taking care to follow the indexing recommendations provided by the manufacturer. (See illustration



7. Like any installation using and following the manufacturer's templates and instructions are critical to a successful installation.

8.) Track arm closers typically require preloading the pinion 45° with the arm parallel with the face of the door. Secure the arm with a washer and pinion screw.

5. Open the door and observe the operation of the closer. Most manufacturers preadjust the closer at the factory, but it is still necessary to fine tune the adjustments to get

optimal closer operation. Adjust the sweep speed (maximum opening to approximately 20°) and the latch speed (20° to closing), so that closing from 90° will take approximately three to six seconds. Faster or slower closing speeds may be desirable, depending upon the type and usage of the opening. A consistent, smooth closing cycle is most desirable.

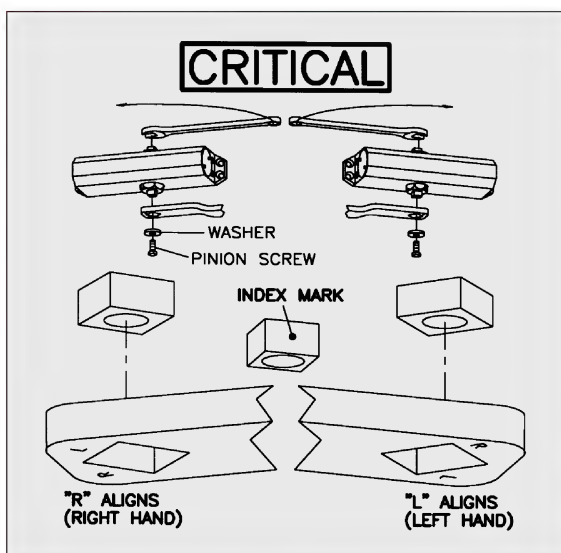


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6. Adjust backcheck and delayed action if furnished. Backcheck is the resistance provided by the closer to forceful opening. Delayed action is the delay or hesitation built into the closing cycle. Be sure that the backcheck is not set so strong that it is overly difficult to push open the door. When setting the delayed action, take into account the potential loss of heat or air conditioning that will occur if the door remains open for too long.

7. Adjust the spring tension if required. As discussed previously in this series, sizing is a function of the type of mount, the door width and whether the installation is on an interior or exterior door. Always reference the specific recommendation of the manufacturer when adjusting spring tension. After the spring adjustment is completed, again open the door to see if any modifications to the valve adjustments are required. (Some installers prefer to perform the spring adjustments prior to adjusting sweep, latch and backcheck. This is a matter of preference and will vary from installer to installer).



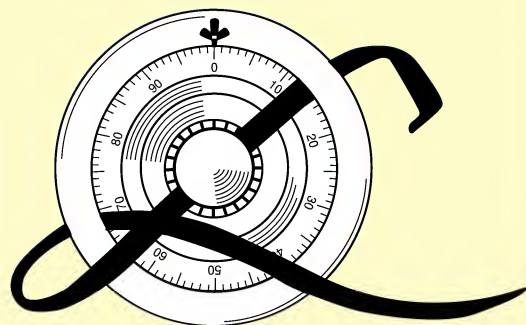
8. Use the proper indexing and preload while attaching the arm to the body.

8. Pass through the opening, observing the door's function as it is used, and fine tune the adjustments. Observe all aspects of the door function to be sure the closer is performing reliably. It is better to spend a few extra minutes at this time than to later make a service call to readjust the closer.

9. Install the dust cap, and/or if the unit was furnished with a streamline or full cover, install them. Be sure they are securely attached, as a falling cover is a hazardous object.

The compact track dimension and its resistance to vandalism have made track arm applications increasingly popular, particularly in schools, public use facilities like subways, train stations and bus stations, as well as in detention and mental health facilities. The trade-off with track mount is that the door is typically harder to open and has less closing power. When the positives outweigh the negatives, track application can help solve problems and provide years of trouble-free service.

*The author is Technical Services Manager for DORMA Door Controls, Inc. **RL***



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AUTOMOTIVE SECURITY

Test Article #113

The Nissan NX2000

by Michael Hyde

The Nissan NX series only lasted from 1991 through 1992. It is a small sporty and good handling car.

the first four positions. It uses the ASP kit #A-16-100 or A-16-106. (See photograph 1.)



1. Front and rear view of the NX series Nissan.

There were two NX's in the series, the 1600 and the 2000. The 1600 is the stripped-down version. The key for these vehicles has eight positions with four depths. The ignition, door and trunk lock contain all eight tumblers. The glove box has four tumblers in



Opening

The NX can be a tricky car to open. The linkage rods are shielded with sheet metal. There is an opening in the shielding to get a tool in position



2. Opening can be tricky but not impossible.



3. There are four screws holding the column shroud together.

to unlock the car. To unlock the car you must slide the linkage rod towards the front of the car. (See photograph 2.)

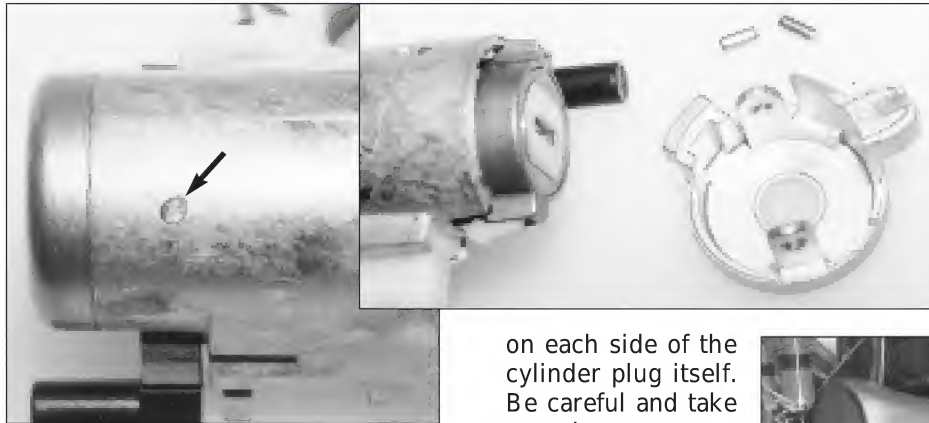
Ignition

The ignition is a bit of work to service. First you must remove the lower plastic kick-panel. There are four Phillips screws holding it on, none of which are hidden. Remove the four screws holding the plastic two-piece steering column shroud together. (See photograph 3.)



4. The removed ignition cylinder.

Because of its location, the lock must be removed to service. There are two sheer-head bolts that will also have to be removed. (See photograph 4.) There are two roll pins that must be removed. I usually drill right next to them with a 7/16" drill bit and then gently pry them out. Remember not to drill deeper than 1/4" or you can



5. Remove the retaining pins to extract the cylinder from the housing.

damage internal lock components. Also, never drill in front or to the facecap side of the pin. Doing so allows retaining pin and cylinder movement after the cylinder is replaced. Once the roll pins are removed, you can then slide the ignition face-cap off of the housing (See photograph 5.)

When sliding the cylinder out be careful as there is a spring loaded

on each side of the cylinder plug itself. Be careful and take your time to remember where each piece fits into. (See photograph 6.)

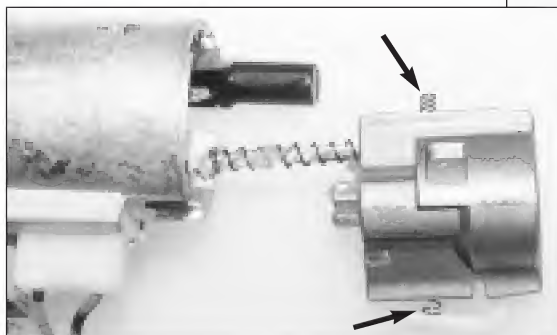
The ignition lock cylinder plug contains all eight tumblers.

Door

For this article we are using the

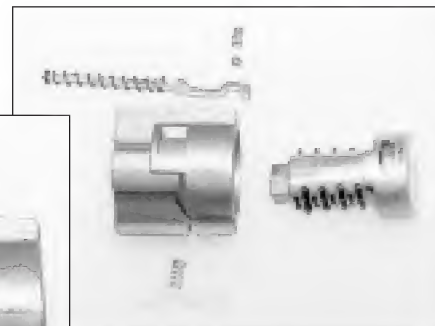


7. The NX door panel.



6. Use care when removing and disassembling the lock cylinder.

activator on each side of the cylinder. Slide the housing face off the cylinder to disassemble the cylinder plug. There are two small detent activators



passenger door. To service the door lock, it is necessary to remove the door panel. The window crank has the usual wire clip that has to be removed. There are four screws that run along the bottom side of the panel and two fasteners on the forward section of the panel that need to be removed. There is one screw



8. Three screws can be found beneath this trim piece.

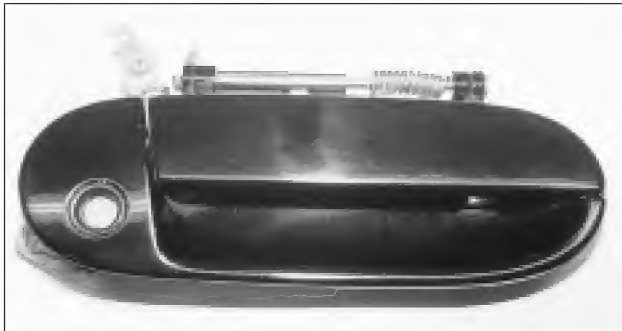
The linkage rods are heavily shielded.

It is easy to remove the handle and lock assembly as one piece. Remove the two 10mm nuts that secure the

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9. The removed handle.



11. The disassembled lock.



10. The code, the lock and the wire retainer.

assembly in place. Disconnect the linkage rods from the handle. (See photograph 9.)

The key code is stamped on the passenger door cylinder tailpiece. The code series runs from X0001-8000. The last four numbers is the actual code. The lock cylinder is held in place to the handle by a wire clip. (See photograph 10.)

To disassemble the door lock it is necessary to remove the reusable

facecap. Next remove the tailpiece and slide the cylinder plug out. The door cylinder plug contains all eight tumblers. (See photograph 11.)

Trunk

The trunk lock is located on the lower right side of the car. It is held in place by a standard horse-shoe style clip.

To service the trunk lock, it is necessary to unsnap the narrow plastic trim panel that rides along the top of the hatch opening. Once that is done, you can now remove the twelve plastic fasteners that hold the inside carpet-like panel cover, which will expose the lock. (See photograph 12.)

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12. The inside trunk trim panels must be removed to gain access to the trunk lock.

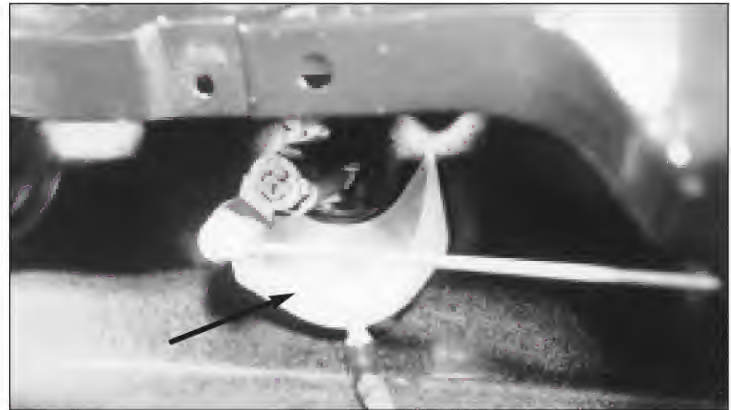
Disconnect the linkage rod and remove the lock clip. Take notice that there is a white plastic drain funnel, for excess moisture from the lock, that sits directly under the lock. This funnel is easily knocked off and must be reglued to hold it back in place. (See photograph 13.)

For the trunk lock cylinder, it will be necessary to remove the facecap and then remove the tailpiece to slide the cylinder plug out. The replacement facecap number is ASP P-16-205. The cylinder plug contains all eight tumblers. The trunk lock cylinder

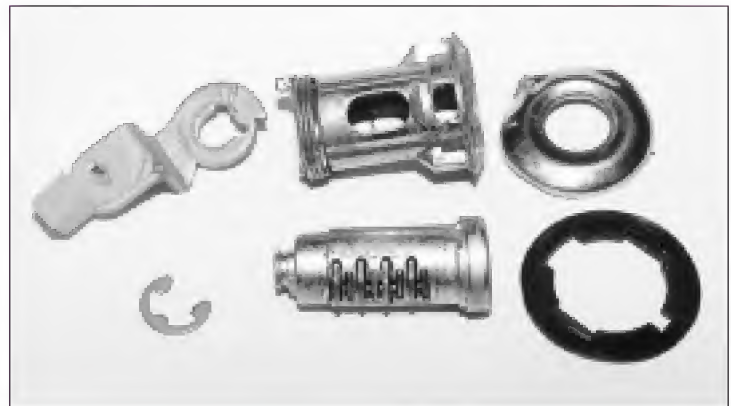
disassembled is pictured. (See photograph 14.)

Glove Box

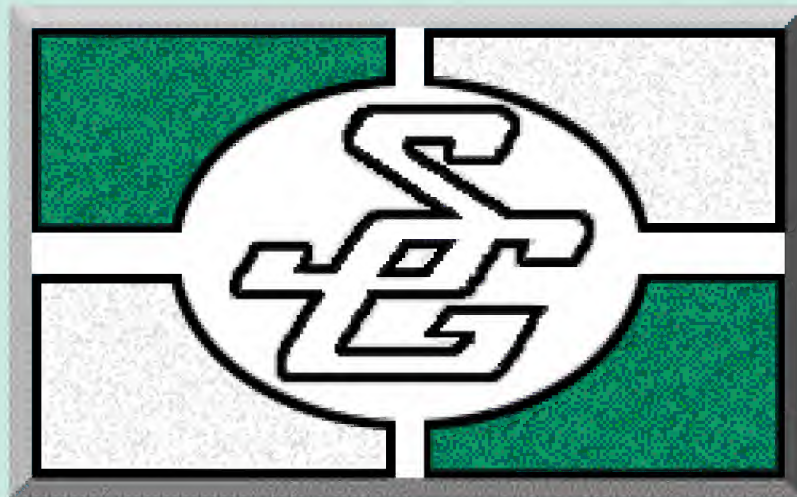
The glove box lock is secured to the glove box door by two screws. (See photograph 15.) To get the lock out of the glove door you must remove the 13 screws



13. When reinstalling the trunk lock, make sure and install the drain cup located below it.



14. The disassembled trunk lock.



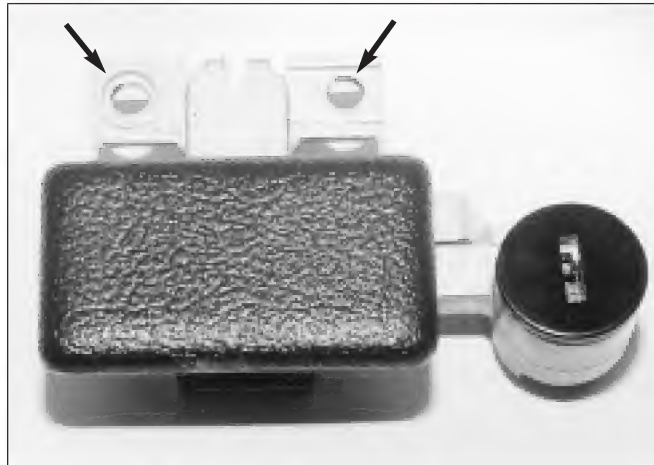
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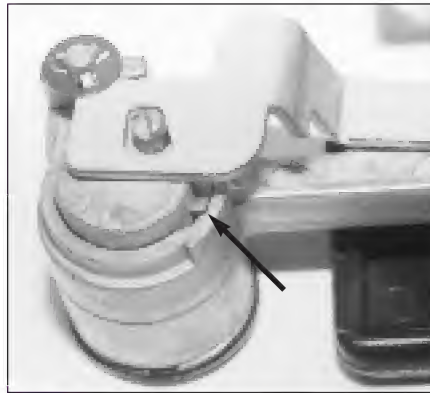


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15. The removed glove box lock.



16. Depress retainer to remove plug.

that hold the front and back sections of the door together.

The glove box cylinder plug will slide right out once the retaining tumbler is depressed. (See photograph 16.) The glove box cylinder plug contains four out of the eight tumblers in positions 1 through 4.

Code Series: Y & X 1-8000

Key Blank:

Ilco X123/ DA25, X210/ DA31

Silca DAT13, DAT14, DAT15, NSN11

Reed Codes: 07-03-096

HPC Card: XF67

M.A.C.S: 2

Shoulder to center of first cut: .118

Cut to Cut: .085

Depths: 1=276, 2=256, 3=236, 4=217



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ELECTRONIC SECURITY

Test Article #114

Troubleshooting The Wireless

by Joseph Moses, Ph.D.

With every alarm installation there will be bugs to catch and wrinkles to iron. Most are very simple and are usually caught during the installation. The reason for testing a system upon completion, however, is to catch those little problems, idiosyncracies or errors we made and didn't catch.

This article describes how to correct common installation errors during a wireless installation. For complete instructions on troubleshooting, see manufacturer's recommendations. The planning checklist below is an overview of common installation errors or problems. While the fix for the various problems will vary by manufacturer, the basic troubleshooting approach remains the same. The following fixes are used for ITI's Commander 2000 system. Installers should attend manufacturer's workshops for the most thorough training in wireless system installation and troubleshooting.

- ☐ The system won't arm
- ☐ Central station is not receiving reports
- ☐ Interior sirens are not producing sounds
- ☐ Interior sirens produce low-volume alarm and high-volume status sounds.
- ☐ Panel does not power up
- ☐ Power LED is flashing, the trouble light is flashing, and after pressing STATUS the panel announces, "System battery failure."
- ☐ All panel LEDs are flashing
- ☐ All panel LEDs are scrolling
- ☐ Incoming voltage reading is 0
- ☐ No dial tone on-premises phone after wiring RJ-31X jack or connecting the Db-8 cord
- ☐ Constant dial tone, preventing dial-out on premises phones
- ☐ Phone does not work

- ☐ Panel announces, "Sensor (sensor #) trouble."
- ☐ Panel announces, "Sensor (sensor #) failure."
- ☐ Panel announces, "Sensor (sensor #) low battery."
- ☐ Smoke sensor beeps once every minute
- ☐ The panel does not respond to sensor activity. There are no alarm, chime, or sensor test sounds
- ☐ The panel does not respond to touchpad commands
- ☐ Lights controlled by X-10 Lamp Module do not work

The System Won't Arm

This problem is usually the result of an open sensor.

1. If arming to level 2, make sure all monitored perimeter doors and windows are closed.
2. If arming to level 3, make sure all perimeter and interior sensors are closed.

Central Station Is Not Receiving Reports

1. Check that the DB-8 cord is plugged into the RJ-31X jack.
2. Check for proper wiring of the RJ-31X jack.
3. Verify the phone number of the receiver line with the central station operator. Reprogram the phone number and retest, if necessary.
4. Replace the RJ-31X jack.
5. Check that the DB-8 cord is properly wired to the panel terminals.
6. Replace the DB-8 cord.

Interior Sirens Are Not Producing Sounds

Check for correct wiring at both the siren and panel terminals.

Interior Sirens Produce Low-Volume Alarm And High-Volume Status Sounds.

Reverse the interior siren wires at panel terminals 12 and 14.

Panel Doesn't Power Up

1. Check the circuit breaker to be sure the circuit is live.
2. Check that the backup batteries are installed correctly, the battery bucket wires are connected to the panel, and the transformer is plugged in.
3. Check for proper wiring at the panel and the transformer.
4. Measure the incoming voltage at the panel terminals.

Power Led Is Flashing, The Trouble Light Is Flashing, And After Pressing Status The Panel Announces, "System Battery Failure."

1. Check the circuit breaker to be sure the circuit is live.
2. Check that the back-up batteries are installed correctly, the tabs are making contact, the battery bucket wires are connected to the panel, and the transformer is plugged in.
3. Check for proper wiring at the panel and the transformer.
4. Measure the incoming voltage at the panel terminals.

All Panel Leds Are Flashing

The panel is in program mode.

All Panel Leds Are Scrolling

A system alarm has occurred since the panel was last armed or the panel is in sensor test or phone test. Press STATUS for a description of the alarm.

Incoming Voltage Reading Is 0

1. Unplug the transformer.
2. Disconnect the wires from the transformer and the panel.
3. Check for continuity (short) between any two wires or any open circuit on any wire.

No Dial Tone On-Premises Phone After Wiring Rj-31x Jack Or Connecting The Db-8 Cord

1. Check the RJ-31X jack wiring.
2. Check the wiring from the panel terminals to the DB-8 cord.

3. Replace the RJ-31X jack.
4. Replace the DB-8 cord.
5. Perform a phone test after troubleshooting the phone line.

Constant Dial Tone, Preventing Dial-Out On Premises Phones

Polarity-sensitive phones exist on the premises. Reverse the wires you connected to the brown and gray wire terminals on the RJ-31X jack.

Phone Does Not Work

Disconnect the panel from telephone jack. If the phone still doesn't work, the system is okay.

Panel Announces, "Sensor (Sensor #) Trouble."

Replace the sensor's cover, if it is off. Activate the sensor.

Panel Announces, "Sensor (Sensor #) Failure."

The sensor is not communicating with the panel.

Panel Announces, "Sensor (Sensor #) Low Battery."

Replace the sensor's battery.

Smoke Sensor Beeps Once Every Minute

Batteries are low. Replace the smoke sensor batteries.

The Panel Does Not Respond To Sensor Activity. There Are No Alarm, Chime, Or Sensor Test Sounds

1. Check that the sensor battery is installed.
2. Check the sensor battery for low voltage. Replace alkaline or lithium batteries, if necessary.
3. Check that the sensor number is programmed into panel memory. Program the sensor, if necessary.


The Panel Does Not Respond To Touchpad Commands

1. Operate touchpads from different locations within the premises to identify areas of intermittent operation.
2. Program the touchpads into the panel.

Lights Controlled By X-10 Lamp Module Do Not Work

1. Check that the lamp has a working bulb.
2. Confirm the lamp's operation at a working outlet.
3. Check that the lamps are plugged into X-10 Lamp Modules and the X-10 Lamp Modules are plugged into outlets that are not controlled by a switch. Relocate to nonswitched outlets, if necessary.
4. Check that the panel is powered by the 4-wire line carrier power transformer and not the 2-wire standard Class II power transformer.
5. Check that the HOUSE dial on the X-10 Lamp Module matches the house code programmed into the panel.

The author is Senior Editor at Interactive Technologies, Inc. (ITI), of North St. Paul, MN. For more information contact ITI at (800) 777-5484, fax (612) 779-4879.

The author wishes to thank ITI Technical Support and Technical Publications for assistance with this article. 



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BEGINNER'S CORNER

Rekeyable File Cabinet Locks



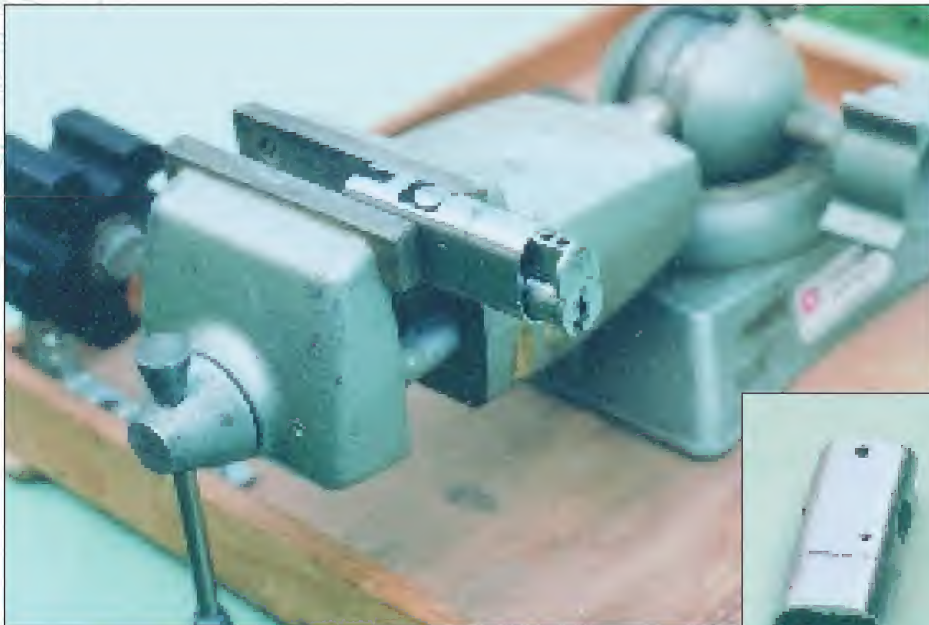
by
**Eugene
Gentry**

Two different brands of rekeyable file cabinet locks, a Chicago, and an S&G needed keys. Keys blanks for the Chicago lock are Star 5CG4, Cole CG14, Ilco 1041Y or Taylor Y14 Key blank. The S&G uses a Yale X10-1/2, Ilco 997X or Curtis Y6.

it out. This is a four pin lock. The plug and case for the top pins come completely apart, so you are able pin the bottom part, then put the case on top and put in the top pins and springs. (See photograph 2.)

With the Chicago rekeyable lock, I didn't think it justified the time to drill out the retaining pin to make a new key. Instead, I used tryout keys and in short order found a key that worked. Using the tryout key as a pattern, I cut a new key for the lock.

There were four other file cabinet locks that I had to make keys for. (See photograph 3.) These had no identification on the locks but the codes, L004 and L009 turned out to be five pin Hudson. This series of codes has ten keys. The code book notes difficulty in duplicating these blanks due to a change in milling. The code book suggests cutting some keys .008" deeper. However, in this particular instance, I found that .004" worked, and .008" did not. Blanks



1. After removing a retaining pin from the side of the cylinder, the plug section can be removed.



2. The disassembled lock.

On both of these locks, the cylinder is held in with a retaining pin on the exterior side. Space is limited so you don't have access to the retaining pin until the lock is removed. (See photograph 1.) The S&G retaining pin went completely through the case and was easy to get out. It was slightly smaller on one end than the other. With a small nail punching the small end, the pin came right out. The Chicago lock had a retaining pin entering only on one side, so it has to be drilled out, rather than being punched.

The S&G cylinder was hard to get out of the case. It took quite a bit of pulling with a hook picking tool to get



3. Four more file cabinet locks using Hudson codes and keys.



4. Spring under tension and part of the linkage at the rear of a push-in lock.

CO106, 1003M and R22 fit the locks. Two Hudson locks whose codes were not in the book were easy to key as they had retaining caps. The caps were pried off, and the pins were dumped out. The plug and cylinder were cleaned. A pre-cut key was used, and new pins and springs were installed.

To remove this type of push in lock from the file cabinet, the top drawer and some times the second drawer has to be removed so you can see to work. (See photograph 4.) The lock goes through a hole in the file cabinet, and is attached at the rear to a shaft by means of a bolt or pin. The shaft is held under tension by a spring, so the spring has to be removed first. For the screw retained version, the screw on the lock can be removed with a screw driver. On the file cabinet I am working on, the lock was attached by a cotter key. It was probably worked on before, and the pin was replaced with a cotter key.

When the lock is pulled out of the hole, it can then be rekeyed or replaced. Various replacement cylinders can be obtained from your distributor. ESP makes a series of widely used lock replacements. **TNL**



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**COVER
STORY!**

CLASH

*When
two of
the best
meet
head on...*



OF THE TITANS!

by Dale Libby

OK. Everybody loves a contest. The crowds, The cheers. The accolades. The recognitions and the honors are welcome too. In everyday life, the working locksmith and safeman does not get much of this, so we, at *The National Locksmith*, decided to pit our former Managing Editor, Tom Seroogy, against Dale Libby (ME) in an all out, no holds barred, Car Opening Tournament.

Who wins? I know you are asking. (I ask, "Who is writing this article?") It was a very evenly matched contest to my surprise, but guile, artfulness, and cunning won the day. The only time I have seen locksmiths compete in the field in a real life situation is when the customers call out more than one locksmith to open their car. They feel the first one to open the car will get the money, and the customer will be gone before the other locksmiths show up.

The problem arises when two or more locksmiths arrive at the same exact instant. Usually a yelling match ensues between all interested parties. I have seen it where no locksmith has opened the car. The customer is the loser in this situation, sometimes.

On to the contest and the basic rules. This "Clash of the Titans" (sometimes I have a very large ego) had a few rules.

Continued on page 44

1. Tom and Dale attack victim one, a 1993 Ford Festiva. Not a toughie, this car was opened by a "J" or "S" tool.



...it
becomes
one
tough
grudge
match.

Continued from page 41



2. (above) Time with a stopwatch, the average opening time was 14 seconds.

3. (below) The Saturn SL-2. Using a horizontal lock tool, the linkage was easy to hook, bind and move.



1. Each car opening would be timed with a stopwatch and the time recorded for each opening.

2. Each participant would use a different opening tool made by a separate manufacturer.

3. Books and opening information should be consulted before opening if needed.

4. Anything goes, basically. (No rules!)

Before we go on, I would like to state a basic concern and point out a few cardinal facts. The purpose of this article is not to single out any particular tool or tool manufacturer. This is not an endorsement of any developer or brand of tools. All the tools used in this article were the choice of the combatants and reflects their prejudices and feelings at the moment.

Many times, I will use different attacks on cars to find the best for me. The same is true when I open a safe or vault. I try different attacks to see which is the most fun (really!). I will now list the tool manufacturers and the different books available for consultation that we used. I would like to thank all the companies involved for making the tools and fine books available. (In no particular order, they are:)





4. Dale and (vertically challenged) Tom, open this Ram Van using the vent window method.

1. HPC and the Car Opening Authority Manual.
2. The "Z" Tool and the Grand Master "Z" Tool System by Slide Lock Company.
3. High Tech Tools and their Encyclopedia Manuals.
4. AUTOSMART Manual by The National Locksmith
5. Tech-Train and the Car Opening Manual
6. Pro-Lok and their 1995 Updates.

The Contest

The day was dark and dreary in early November. The temperature hovered at about 18 degrees and the snow coated the ground. Tom and Dale had

done their homework and had picked their weapons and were ready to do battle, as Knights of Old.

The cars chosen were a cross section of standard popular cars that locksmiths meet and defeat every day, and represent several different types of tools and openings. These were selected for benefit of the reader, who is actually the real winner of this article.

5. Inside view of the van using the vent window tools.





6. Dale and Tom easily open this new Cherokee.

**Vehicle #1:
1993 Ford Festiva**

One of the greatest innovative tools of the last several years is the Under Button tool, described as either an "S" tool or "J" tool because of its shape. One only inserts the tool adjacent to the vertical button, lowers it into the car, and come up under the bottom of the button and raises it up catching the bottom of the opening button. Photograph one shows our two competitors opening the car. Actual times will not be listed for each car.

Photograph two shows the stopwatch we used to time the openings. The average time for all car openings was just under 28 seconds and no opening took longer than 45 seconds. When you're hot, You are hot.



If doing this for a customer, one might want to make the car opening seem harder, so the client thinks he or she is getting their money's worth. Put on a show and they will be willing to pay for it. Do not make it seem too easy.

**Vehicle #2
1993 Saturn SL-2**

The Saturn SL-2 is a popular vehicle (See photograph 3.) For the assault on this 1993 car, I chose the inverted "Z" type tool to hook the linkage rod. Tom chose the HPC Slide and Bind type tool. Hook, Bind, and slide.

**Vehicle #3
1995 Ram Van**

Tom and Dale attack a 1995 Ram Van through the window vent. Up to this time, most vent windows have been able to be circumvented by using a single curved wire tool, inserted in the passenger vent window. The sequence was to slip the tool under the vent, hook the vent lever, pull the tool to depress the button, and turn. Easy and quick. The new Dodge button and lever configuration make the use of two tools a necessity. Photograph four shows Dale and Tom opening the van quickly and easily. Dale had the advantage here, for he is taller than Tom and he had better leverage. (Tom is vertically challenged. It should be noted that Tom did not receive a handicap for this impediment.)

A close up of the vent window tools can be seen in photograph five. These are Pro-Lok's version of vent tools. The other manufacturers had similar tools that worked as well. One tool is used to depress the button and one to turn the elevated lever. These two tools can be used on all vented windows no matter the year or style of window vents.

Continued from page 46

Vehicle #4

1995 Jeep Cherokee

The Diabolical 1995 Jeep Cherokee (owned by beloved Publisher Marc Goldberg). In photograph 6 we see the attack on this car. I chose an inverted "Z" type tool to come under the rod, lock bind and slide. I had a little trouble with this but I was successful. Here is where Tom took the lead, temporarily. Tom chose the new HPC CO-75 Horizontal Rod clutch tool.

This innovative device has a movable rod that can be secured to the horizontal rod and 'locked' into position. It really grabs the rod for easy opening. I have found this tool great when using on cars that have a cloth covering on the rod (Anti-Rattle Material). There is also a Vertical Clutch variant of this tool (CO-76) available. Tom's time leaps ahead on this next-to-last vehicle.

Vehicle #5

1995 Nissan Maxima

The dreaded 1995 Nissan Maxima. The tools that both Tom and I chose to attack this car was the newest and improved Under-the-Window tools. This is the type of instrument that is inserted outside the window, lowered down and under the window. The tool is then raised up and turned to enter the inside of the car. These tools have evolved to fit just about any hard to open vehicle out there. Photograph seven shows the attack on this car.

The tool I chose has a point at the top of the tool which made insertion into the inside window trim a snap. I went for the power lock button. Just tap it and the doors open.

The tool Tom used has a curve at the top with a flattened area for easy inside insertion. Once inside the car, Tom made the fatal error of going for the unlock button. The first

7. Using the Under-The-Window tool.



time he hit it, his tool slipped off. Seconds later though, he hooked and moved the button out and unlocked the car. Unfortunately for him, this added the needed seconds to his time that tied our opening times to almost within 1/100 of a second. We needed a tie breaker. No Holds Barred. Whoever opened the last vehicle quickest, won the contest and the Trophy.

Tom, being more honest and somewhat gullible, fell to the suggestion that we open my 1997 Ford Locksmith Van. Winner take all. (I could not use my key, however, but any other tool was OK.) I laughed. Years ago I had developed a tool to open rear doors on all Ford Vans. This tool will not work now because of the new handle and lock arrangement on later model Ford Products. (Years before, I saw a similar tool in a Technitips column.)

Tom chose the option of opening the vent window with the single tool I mentioned earlier that we did not use on the Ram Van. I told Tom that to be fair, I would use the tool shown in the rear door of the van in photograph eight. Since he had never seen this tool, he readily agreed. We also decided that the first one to get either door open would be the winner.





8. Dale's slick little Ford tool opened his van faster than using a key.

"One, Two, Three - GO!" I shouted. I inserted my curved shim tool into the upper right side of the button, pushed in, and the door was open (not unlocked, but opened!) This took about three seconds. Tom had just inserted his tool under the vent glass through the rubber weatherstrip and was aligning his tool when the contest ended. I was the winner, so to speak. I had set him up for a "Sting". Following the guffawed look on his face, I showed Tom how to use my homemade tool, and in about 30 seconds, he was an expert with it too.

In all fairness, I declared an official Tie. Tom and I then found some broken glass and put it along with the Cherokee keys in a box for Marc. We stated in a letter of apology that the Jeep Cherokee (His) was the hardest one to open. (Ho, ho, ho.)

While we had fun with this contest, opening cars for a customer is the real thing. And with the advent of superior car opening tools and manuals we all have access to, today's locksmith can make car opening an easy and profitable part of his business. OPEN AND PROSPER!



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AUTOMOTIVE TOOLS ARE NO LONGER A LUXURY, THEY'RE A NECESSITY.

**COVER
STORY!**

The National Locksmith Automotive Tool Showcase



by Tom Mazzone

Along with the constant changes in the automotive industry, technology has made it necessary to update the locksmith's knowledge in servicing the newer vehicles on the market. Classes of education can be sought out as well as seminars at trade shows and at various different local associations. Not only is knowledge required, but the investment in tools to handle the newer types of service has become a must if the locksmith is to continue in the competitive automotive market.

This month, we are going to cover a large variety of tools for automotive service. Some will be familiar to you and have been on the market for a while, while some are fairly new. The lack of investment in tools can sometimes stagnate a locksmith's growth in the field if he/she is not willing to invest their profits back into their business. Unfortunately, with the extreme liabilities involved today, good quality tools are no longer a luxury, but a good investment.

HPC

SWLPC-1 Steering Wheel Lock Plate Compressor

Solving the most frustrating part of GM column teardown, HPC's SWLPC-1 steering wheel lock plate compressor is necessary for



1. HPC's SWLPC-1 Steering Wheel Lock Plate removal tool.

successful and easy steering wheel lock plate removal. (See photograph 1.) Simplifying the procedure even more, the SWLPC-1 is designed to fit tight down over the steering shaft. This allows the lock plate retaining ring to slide up and onto the base of the compressor for storage during column service and replacement of the ring during reassembly.

AST-4 Clip Removal Tool

Providing fast, damage free removal of door panels, HPC's AST-4 clip removal tool. The V shape of the tool firmly straddles the clip being removed, preventing tearing of the door panel and breaking the clip. The short angled fork provides an excellent fulcrum and is small enough to fit into even some of the tightest spots.

Pro-Lok

Jiffy Lock Cap Clincher #740



2. Pro-Lok's Jiffy Lock Cap Clincher makes fast work in replacing GM facecaps.

The Jiffy Lock Cap Clincher can make easy work in reinstalling GM lock cylinder facecaps. (See photograph 2.) This tool eliminates having to crimp the cap's small tabs down with a screwdriver while

holding downward pressure against a bench to compress the facecap springs. Simply place the assembled lock cylinder into The Clincher with the cap in the center of the tool's



3. Removing door panel clips easily and without damage to the clip or the panel is the job of Pro-Lok's Zip Clip Tool.

cavity. Align the lock with two of the four tabs under the clincher's handles. Hold the lock down and squeeze the handles applying even pressure. Rotate the lock cylinder 90 degrees and squeeze again. While the directions are very clear, I continued around to all four tabs and squeezed each tab individually giving a very nice tight fit. There were no scratches or marks on the lock face to be found. This tool is limited to GM door and trunk facecaps and only some foreign facecaps that will have the same diameter as a GM facecap.

Zip Clip Tool #410

The Zip Clip Tool is designed to make the removal of interior door trim panel clips fast and easy. (See photograph 3.) It allows the technician to concentrate the removal force on the fastener and helps to avoid breaking or tearing the fastener mounting areas away from the trim panel itself. It is a squeeze type design utilizing a fulcrum principle and a strong return spring. The openings in the working ends of the tool are designed to handle most fasteners that you will find on today's automotive market. Simply insert



4. For removing broken keys, the Wafer Tumbler Spreader and Broken Key Extractor from Wedgeco are ideal.

under the fastener at its attachment area and squeeze the handles. Repeat at each fastener until the door panel can be removed from the door.

Wedgeco

Wafer Tumbler Spreader and Broken Key Extractor

Wedgeco's Wafer Tumbler Spreader is a very handy tool when it is necessary to have both hands free during a broken key extraction.. (See photograph 4.) Having the second hand free to hold a light can make the difference between a quick and easy extraction and a headache. Insert the tool in the keyway and release the handles. The internal spring will put outward force on the tools tip, holding either the key buzzer activator out of the way or to help hold wafers into their cells to allow unrestricted movement of the broken key. This action of the tool frees up the other hand and really is a plus. The working end of the tool is small enough to allow plenty of room to work and does not get in the technicians way.

The tool comes with a spiral key extractor which has a handle made out of aluminum hexagonal stock. The technician can get a good grip on the extractor after it has been threaded into place along the broken key's milling grooves.

Alligator Forceps-Serrated Jaw

Alligator Forceps by Wedgeco can be another handy addition to the locksmith's tool box. (See photograph 5.) The serrated jaws allow positive holding action for picking up small parts such as key buzzer switches, small screws, etc. The curved end of the tool allows installation into tight areas and has a positive locking feature to allow easy removal. They are constructed from stainless steel

for durability and to withstand corrosion.

Wedge -It 2 in 1 Tool

The Wedge It 2 in 1 Tool is basically just as its name states. (See photograph 6.) It is a combination auto glass wedge for installation of car opening tools as well as a door trim panel fastener removal tool.

The tool has a curved plastic coated handle for easy handling and use. It also has a



5. The Alligator Forceps by Wedgeco is a handy addition to the locksmith's toolbox.

sharply tapered working end which allows for easy insertion between tight door belt moldings and door interior



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6. Wedging doors open for opening is now easier with Wedgeco's Wedge-It.

trim panels. While small in size, it's angled end fit's nicely between even some of the more tighter work areas. The plastic coated handle not only is comfortable but allows for a good, firm grip.

Lock Technologies, Inc.

Door and Trunk Reforming Tool Model 700

The LTI Lock Reforming Tool is a unique tool used to quickly reform body sheet metal back to its original shape after a forced entry. (See photograph 7.) The tool will work on

GM, Ford, Chrysler and most foreign cars. To use the tool, simply insert the female portion behind the damaged hole and install the male portion from the outside. Tighten the bolt with a ratchet or box wrench until the metal is restored to its original shape. In many cases, very little additional paint work other than touch up will be necessary. This saves the customer money and lets the locksmith complete installation without the need for an auto body shop.

620 Grand Master Lock Pick Set

The LTI 620 Grand Master Pick Set is a well stocked assortment of rocker picks that are individually grouped into dividers that reflect the vehicles they are effective on. (See photograph 8.) There are six compartments sewn into a sturdy leather case. Included with the set of picks is a tension wrench for double sided locks.

The rocker picks have different combinations cut at each end of the tool and have a stainless steel handle riveted on to them. This makes for a more comfortable and positive feel when raking a lock open. Applying a lock lubricant will greatly improve your picking success.



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7. Reforming the lock hole of an auto lock that's been forcibly removed is now possible with Lock Technologies' Door and Trunk Reforming Tool Model 700.

The locks covered with this kit are GM, Ford Lincoln Mercury, Chrysler Plymouth Dodge, and various foreign car locks that use wafer tumblers. The Ford Ten Cut Ignition is the only exception due to their inability to unlock the Ford side bar lock. The kit's opening edges are secured with Velcro and folds up into a nice small package. The kit contains 37 rocker picks, one tension wrench, and one gas cap pick. Complete instructions are included.



8. A combo kit of picks. LTI's 620 pick set includes just about every automotive pick available.

Practice is required as with any tool, and remember, using these tools requires utilizing all of the locks tolerances. Varying amounts of tension used by the locksmith will gauge his success/failure rate when using rocker picks.

A-1 Security Mfg.

G-Pull

The G-Pull by A-1 is a very simple to use tool designed to extract trunk lock plugs on GM vehicles. (See photograph 9.) It can also be used on some variations of padlocks, desk locks, safety deposit locks, and even some foreign cars.

Once the facecap has been removed, the 6-32 pan head screw on the main puller shaft can be threaded into the keyway. Care must be taken

to assure that the main shaft of the tool remains perpendicular to the keyway. Rotate the steel body of the tool over the lock housing and tighten the large wing nut at the top of the tool. The lock plug can be extracted smoothly and easily.

In the event that the 6-32 pan head screw breaks or becomes worn out, replacements can be obtained at any hardware store. A supply of four replacement screws comes with the kit.

#PS2 Ignition Service Kit for GM Ten Cut

The A-1 #PS2 Ignition Service Kit is an invaluable tool designed exclusively for the new style GM ten cut ignition lock systems. (See photograph 10.) It is designed to require no drilling and not only pick the lock for removal but it comes with a lock

decoder to determine the exact key cuts. A complete instruction manual with clear drawings have the locksmith generating a working key in short order. The key cut positions are listed in the front of the manual as well as a parts list of the contents of the tool kit. The tools are packaged in



9. For fast, effort free extraction of GM trunk lock plugs, A-1's G-Pull is the answer.

a plastic cylinder with rubber caps on each end.

After removing the small plastic bezel around the ignition lock, one of the pressure tools is inserted at the side bar broaching. Once inserted, slight pressure is exerted on the side

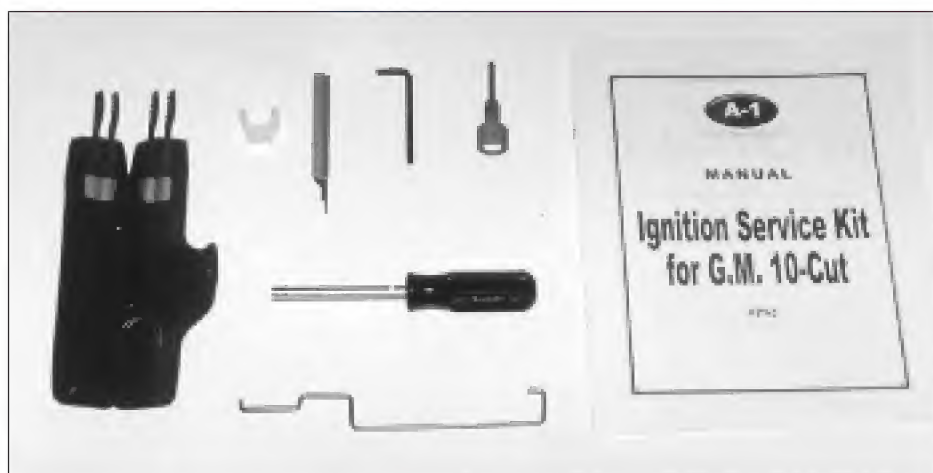


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10. Damage free removal of GM 10-Cut ignitions is now possible using A-1's PS2 Ignition Service Kit.

bar. There are four rocker type picks in the kit. Begin to rake the wafer tumblers as pressure is lightly applied. Once the side bar drops into the wafers, the lock can be turned to the ON position for removal for either replacement or decoding. With the '95 GM trucks, the use of a supplied special removal key is necessary to avoid shearing a new styled key warning buzzer.

In the tool kit you will find a special tool designed to push the depression pin on the lock cylinder housing. While this tool will take some practice to use, it's design is to limit the amount of disassembly required to reach the pin.

With the lock now in hand, first check to see if there is a code stamped on the lock cylinder housing. If not, use your fingers to put pressure on the side bar and again rake the cylinder. Be patient throughout the picking process as these wafer tumblers have false gates. With the lock picked, the decoder tool can now be used to determine the key's direct bitting.

This is a well thought out and designed tool with everything neatly packaged in one kit. The instructions are clear and simple, bringing a difficult to service lock to a simple solution.

R and D Tool Co.

R and D Lock Pick Sets

The R and D pick sets are among some of the most well engineered pick sets on the locksmith market today. (See photograph 11.) They incorporate precision made tooling and simple theory. Originally designed to pick

and decode GM side bar locks only, they are now capable of picking and decoding not only 6 cut GM sidebar locks, but Ford side bar ignition locks and GM 9-Cut locks manufactured after September, 1994.

To use the R and D tools, lubrication of the lock prior to service is critical. Suggested lubricants are mentioned in the directions. All directions should first be read carefully and some practice efforts made before going into the field with the tool. Each of the tools has a slightly different procedure to work with the different inherent natures of each style of lock. The following is a brief overview of the use of the tool.

To begin, clean and lubricate the lock. Insert one of the spring depressors into the lock to depress all wafer springs into their individual

cells. Insure that it is straight by inserting a second depressor and checking for vertical alignment to the keyway. Remove one depressor leaving one remaining in the lock. Insert the spring retainer to it's proper alignment mark which coincides on the spring retainer and the depressor. You should then lightly rock the retainer clockwise/counter clockwise until you feel the retainer drop into the pin cells. There is a retainer slide on the top of the tool that will then be slid into the lock, holding it firmly in place in the pin cells. Remove the spring depressor.

At this point all of the wafers are free floating. Take a small hammer and gently but rapidly vibrate the face of the lock causing the wafers to move in their cells and be trapped by the lock's side bar. When all wafers are trapped, the lock is picked!

Turn the lock to the "Accessory" position and insert the decoder tool. Line up the index marks on their respective cells and move the decoder handle until resistance is felt. Read the number of slots or windows in the end of the tool and that number of slots is your decoded depth. Move to each wafer cell until all cells are decoded. Follow all directions as far as removal.

This is truly an ingenious tool, however it requires care in usage. It can break if handled roughly. It is an expensive tool but one that can make the locksmith a great deal of money if used properly. It can eliminate column teardown and even be used to start



11. R and D Picksets allow effective picking of GM and Ford sidebar ignitions.



12. Aero Lock produces try-out keys for opening locks and generating keys.

the vehicle to move it to a safe place for service. It should also be mentioned that this tool is applicable to picking and decoding the GM six cut door and trunk locks as well. Again, because of the tool's fine machining, it can break if the locksmith is too heavy handed. This is not the fault of the tool, but can be an expensive lesson on finesse.

Aero Lock

Try-Out Key Sets

Try Out Key sets have long been an accepted practice by locksmiths to generate a first key. Try-out keys use half cut combinations and use all of the tolerance that is inherent to all locks. (See photograph 12.) Once a working tryout key is found, the locksmith can either use an impressioning technique or a key chart to determine the direct bitting. Typically, the automotive locks that have large numbers of combinations will require the use of try-out sets that are divided into specific groups. This will limit the number of possibilities the locksmith needs to try before determining the direct bitting.

For example, with Aero Lock's TO-3 Try-Out Set, we can determine the direct bitting of a Ford Ten Cut ignition lock without drilling or lock removal. Determine what the fifth and sixth position's cuts are by either direct reading the door lock or impressioning. Look on the supplied chart to find the series of tryout keys that will correspond. In the box that has the corresponding tryout keys, use each of the keys in the ignition trying both sides of the key until you find one that turns the ignition lock. Record the number of that tryout key and look on the chart to find all of the possibilities of direct bitting. All of the

possibilities are done for you right in the chart.

Aero Lock has a catalog with a complete listing of all of its try-out keys. The keys are typically cut on Silca blanks with clean, smooth milling and don't appear to be duplicated. All of the charts are complete and have easy to follow directions. They are also very neatly packaged and have been in the locksmith market for quite some time.

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13. Able Locksmith's Squeeze Plug tool allows damage free removal of the GM snap-in glove box plug.

Aable Locksmith

Squeeze Plug Removal Tool

Aable's Squeeze Plug Tool is a slick answer to easy removal of glove box cylinders that are retained by plastic

tab type retainers. (See photograph 13.) These retainers require being spread far enough apart simultaneously while pushing the center core out all in one motion.

These tabs are fragile and can deform, allowing the plug to be loose after service.

The Squeeze Plug Removal Tool is installed over the lock housing with the glove box in the full open position. The legs of the latch hold the tool in alignment while the removal fingers fit between the plug and the retaining tabs. The center screw is then tightened, spreading the removal fingers to the exact width for removal. As this is being done, the center screw begins to push the plug out smoothly and easily. The latch is left unreformed, allowing easy reinstallation.

GM 9 Wafer Removal Ignition Kit

Aable's contribution to the locksmith tool market has been vast and very popular. They were the first on the market with their GM 9 Wafer Ignition Removal Kit. (See photograph 14.) All the tools in the kit are well machined for great accuracy.



14. Removing and reusing GM's new 10-Cut ignitions is possible with Aable's GM 9 Wafer Removal Ignition Kit.

To begin, place the alignment guide block into the keyway. This will locate your exact drill point for the sidebar. Using the special drilling arbor, drill through the lock face until the arbor's shoulder stop contacts the lock face. Insert the tension tool into the lock face until it also contacts its pre determined stop. At this point, rake the wafers until you feel the tension tool turn clockwise. This indicates the wafers falling into the sidebar. Try to turn the lock to RUN. As the lock begins to turn and you feel the sidebar come out of it's broaching, remove the tension tool. Turn the lock to RUN and depress the retainer, removing the lock for either replacement or direct reading.

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15. Kent Moore's SIR Lock Compressor Kit for steering wheel lock plate compression and retaining removal of most GM vehicles, including those with airbags.

The kit comes with an assortment of black plastic plugs which are the exact match for the facecap. Simply tap one into the drilled hole and smooth it over with a piece of fine emery or crocus cloth. The plug blends right in. You can also spray a

very fine coat of Satin Black spray paint over the lock, but it really is not necessary. The plugs blend in very nicely leaving a well finished surface.

Kent Moore

J 23653 SIR Lock Compressor Kit

The Kent Moore J 23653 Lock Plate Compressor is specially designed to service GM columns equipped with SIR (Supplemental Inflatable Restraint). (See photograph 15.) The bridge is longer to accommodate the distance to the lock plate. With The SIR coil being mounted above the lock plate, the lock plate is set deeper into the upper shift bowl. The forcing screw is also longer to give full travel of the bridge. A retaining ring pusher J 23653-24 is also included to prevent over expanding the retaining ring on installation. The retaining ring pusher also makes ring installation quicker and easier.

Sieveling Products Co.

EZ Pull GM Wheel Puller

Steering wheel pullers come in all



16. No fuss removal of GM steering wheels is now possible with Sieveling Products EZ Pull GM wheel puller.

different shapes and sizes. The EZ GM Wheel Puller is a small, compact unit incorporating some good ideas. (See photograph 16.) First, it's main puller beam is made of hardened steel. The main puller bolt is pilotless taking the worry out of deforming threads on a telescopic steering shaft.

The bolts that actually thread into the steering wheel are captive, being retained by external snap rings. This is a nice feature as you don't run the

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risk of misplacing the bolts. All bolts are grade 5 and the tool is coated with a black oxide finish. The puller will pull all GM steering wheels and most Chrysler wheels with Saginaw columns.

The Clamp King

The Clamp King is another slick tool design to securely hold GM lock cylinders during the staking process. (See photograph 17.) The Clamp King will not crush or mar the cylinder in any way. It will also hold Medeco, Schlage, and Arrow cylinders for recombining. There is a large and a small version of The Clamp King and both are coated with a black oxide finish.

Keedex

K-4 GM Decoder

The Keedex Decoder is a small, compact tool designed to decode GM six cut lock cylinders. The procedure is fast and simple. (See photograph 18.)

Disassemble the lock down to the cylinder. Hold pressure on the side bar and rake the lock to the picked position. With the wafer retainer facing up, insert the fingers of the tool into the six wafer cavities, slowly and evenly. The K-4 fingers will contact their respective wafers, adjusting to the combination of the lock. Remove the tool and decode the depths using the gauge included with the tool. Carefully read the cuts and then transfer the code to your cutting



17. Staking GM tumbler caps is made much easier using the Sieveking Products Clamp King.

equipment to generate a first key. To reset the decoder, push down the reverse side on a flat surface.

Allowing for wear in the lock, a code may come up as a half cut. At



18. Keedex's K-4 GM decoder aids in decoding the GM lock plug.

this point, using simple rules of progression will aid in the decoding.

K-2 Jaws 11-L

The K-2 Jaws 11-L removal tool is designed to safely remove stubborn door lock cylinder retainer clips. (See photograph 19.) The tool is placed into the door cavity and the slot in the working end of the tool is placed over the retainer clip. By screwing the threaded rod inward, contact is made against the lock cylinder



19. No more skinned knuckles when removing door lock clips. Keedex's K-2 Jaws 11-L and K-3 Retainer Clip Remover now makes door clip removal a snap.

housing. Using a rocking motion, the clip is dislodged from the grooves which retain it to the housing. Further screwing of the threaded rod will completely remove the clip and retain it in the tool.

This tool saves scarred knuckles and wasted time hunting for lock retainer clips that accidentally fall into the door.

K-3 Retainer Clip Remover

This tool is a larger version of the K-2 Clip Remover. It does not incorporate a screw type action but the working end is very similar to the K-2. It has a large, fluted plastic handle and a thirteen and a half inch shaft. This is ideal when working in door cavities that have limited access to install the K-2 removal tool. Insert the K-3 through the closest opening in the inner door cavity to the retainer clip. Slide the slotted opening in the end of the tool over the lock cylinder retainer. Rock the tool back and forth to loosen the clip and then, prying

against the inner door cavity, slide the clip off of the lock cylinder. This is still another tool to prevent skinned knuckles and much frustration.

All-Lock

A-7000 VATS Decoder

The All lock 7000 VATS Decoder was one of the first decoder units on the market when VATS/PASS came into use. (See photograph 20.) It is built into an extremely durable metal case and is compact with a complete listing of instructions on the underside of the lid. The A-7000 has all of the capabilities of performing test functions of the VATS/PASS system as well as decoding resistances for key duplication.

The A-7000 has test input and output leads that mate exactly with the vehicle's existing wiring loom. The four minute delay and on/off switches have red LED lights to tell the operator exactly what the status of the decoder is.

With the updated LT-7006 adapter, the locksmith can now decode the new double sided VATS/PASS ignition keys. Following simple directions included with the update adapter, one can easily upgrade to maximum efficiency with the A-7000.



20. Carrying a full line of VATS equipment for the locksmith, All-Lock's A-7000 VATS Decoder is a full diagnostic machine for both single and double sided VATS keys and VATS equipped vehicles.

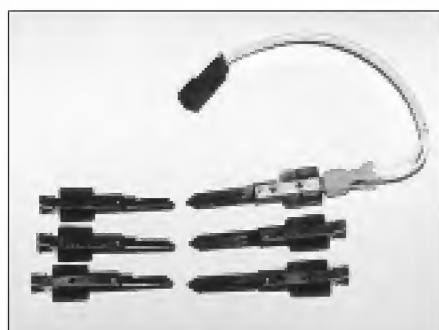
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As well as decoding ohms resistance's, the A-7000 has the capability of finding faults in the VATS/PASS system downstream of the column and ignition lock. This feature is handy in the event of a problem that may surface after the locksmith has serviced the vehicle, eliminating his/her liability.

A7004 And A7005 Plastic Adaptor Keys

The A7004 and A7005 Plastic Adaptor keys allow the locksmith to transfer the mechanical code derived from the alpha numeric code on the



21. To ensure easy key generation of a VATS equipped vehicle, All-Lock's A7004 and A7005 Plastic Key Adaptor Keys and LT7007 Key Adaptor Harness allow the vehicle to be interrogated through the ignition.

ignition lock to the less expensive plastic sided key. (See photograph 21.) These keys have metal contacts on their bow that mate with the terminals on the PASS connector on the A-7000 Decoder. The contacts transfer the proper resistance from the interrogator to the contacts in the lock cylinder housing. After using the proper procedure, the vehicle can be started using the plastic keys as a slave key. The information can then be transferred to the correct PASS resistor key.

To economize, the locksmith need use only one side of the A7005 double sided plastic key per job, as the GM 10-Cut ignition is not a true double sided wafer lock but uses a convenience key.

LT7007 Key Adapter Harness

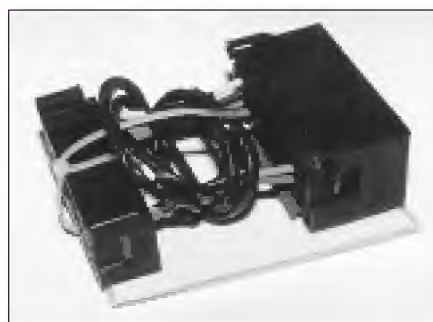
The LT7007 key adapter harness is designed to eliminate under dash disassembly for VATS ignition GM's by the use of a short wiring loom and plastic keys (mentioned above). These adaptor keys also have metal contacts for transferring the necessary

resistance. The special harness has leads that attach to the keys and to the VATS/PASS interrogator. The mechanical code is cut onto the plastic keys and the loom is connected to the interrogator and the slave key. Standard procedure for VATS/PASS decoding is then applied.

All-Lock A7001 VATS Adapter

The A7001 adapter is designed for use on specific upper end GM models that incorporate a 48 way connector in the wiring loom from the steering column. (See photograph 22) This loom will include the connector for the VATS/PASS system. Rather than separating the wiring loom connectors for the VATS/PASS system at terminals 12 and 13 in the 48 way bulkhead, the adapter is placed in between the two mating halves of the 48 way connector. The adapter has the standard two cavity connector coming off of it and can be tied directly into the interrogator.

This type of wiring loom set up is what prompted the design of adapters that work outside of the ignition lock



22. For diagnostics of GM VATS equipped vehicles using the 48 pin connector, All-Lock's A7001 VATS Adapter is available.

cylinder, thus eliminating this type of service. The adapter is hard to install because of cramped space under the vehicle's instrument panel. However, it is a necessary tool when trying to diagnose faults downstream of the steering column as it allows the vehicles specialized electronics to remain intact while testing is being performed.

STRATTEC

GM 1000 Workbench

The GM 1000 Workbench is a unitized fixture designed to hold GM lock cylinders for retainer staking and a holding fixture for crimping on facecaps. (See photograph 23.) It is

well machined and very sturdy. It has a retaining arm to align the lock cylinder squarely in the tool's milling.

The retaining plate that holds the lock cylinder in place for staking is spring loaded and holds the plug without crushing or marring it.

There is a provision on the opposite side of the tool for crimping on Ford facecaps as well. A lever type crimping



23. For easy facecap staking, try Strattec's GM 1000 Workbench.

arm is used to install a tight, mark free installation of the facecap.

Key-Probe Interrogator Kit #702907

The Strattec Key Probe Interrogator is probably the most complete kits on the market so far. (See photograph 24.) It comes equipped with interrogator unit, five each of both the single sided and the double sided plastic key blanks with interrogator connector leads, 15 single sided and 14 double sided VATS/PASS key blanks. The unit is packaged in a durable, hard plastic case with foam lining.

The VATS/PASS Interrogator is designed to input resistance for interrogation and for reading resistance of existing keys only. The unit is not designed to diagnose other



24. Strattec's new Key-Probe Interrogator Kit is the most complete VATS kit available today.

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Continued from page 60

faults within the system. The lock housing that receives the existing keys for interrogation has the capability to read both the single and double sided keys, eliminating the need for further adapters. All things considered, this is a top notch piece of equipment.

Following is an alphabetical list of the manufacturers who helped make this article possible through the use of their tools. For pricing and information on the various products contact:

A-1 Security Mfg. Co. products are available through an authorized A-1 Security Mfg. distributors.

Aable Locksmiths, 91-10 Liberty Ave., Ozone Park, NY 11417, Phone (718) 847-1377.

Aero Lock Co., 3675 New Getwell #9, Memphis, TN 38118-6053, Phone (800) 627-9433.

All-Lock products available through authorized All-Lock distributors.

HPC products available through authorized HPC distributors.

Keedex Manufacturing, products available through authorized Keedex distributors.

Kent-Moore, 28635 Mound Rd., Warren, MI 48092, Phone (810) 578-7218.

Lock Technology, Inc., 552 S. Washington St., Ste 107, Naperville, IL 60540, Phone (708) 369-6060.

Pro-Lok, products available through authorized Pro-Lok distributors.

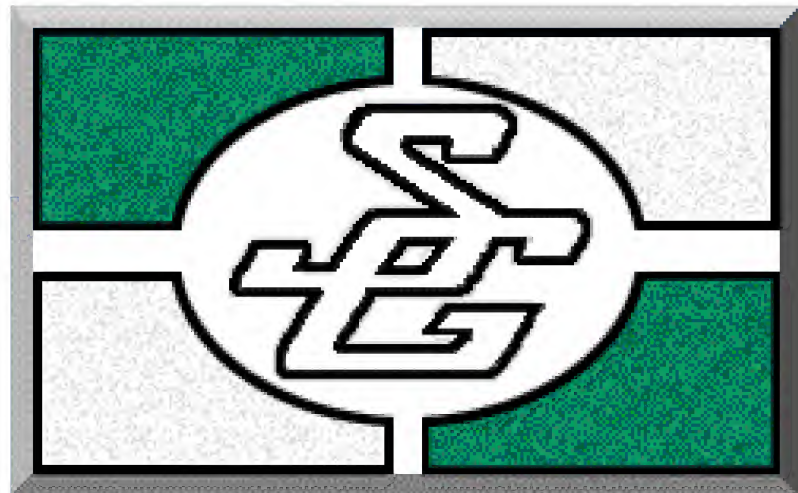
R&D Tool Co., products available through authorized R&D distributors.

Sieveking Products, products available through authorized Sieveking Products distributors.

Strattec, products available through authorized Strattec distributors.

Wedgeco Tool Supply, 717-122 Ave. NE, Ste B-4, Bellevue WA 98005, Phone (206) 747-9260.

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ADA Through Another's Eyes

It's said that you can't judge a person till you've walked a mile in their shoes. So, join us and step into the shoes of a disabled person.

by Tom Seroogy

For years, we've been preaching the benefits of advising your customers on ADA requirements. We've tackled the subject from just about every perspective - being a professional, protecting your customer's best interest and making more money. Still, for many locksmiths, ADA is for the other guy, the contractor or builder. Interest on the whole has been tepid at most.

How come?

Perspective, I think.

The way people perceive day to day situations and events depends a great deal on their past experience. For instance, as locksmiths, there is a tendency to subconsciously identify and evaluate the hardware on a building we enter - the manufacturer, style, function and keyway, etc. We often find ourselves mentally picking or dreaming of some means to bypass the locks with which we come in contact.

Now, this isn't because locksmiths don't have lives. It's because this is the nature of our job and our trade. This is the perspective from which we

view the things we do each day.

A fireman, on the other hand, walking through the same building may observe doors and exits from a fire hazard and life safety perspective - the swing of the door, direction of traffic, the function and operation of the hardware, etc.

Fortunately, for a majority of us, progressive poor eyesight and arthritis will be the extent of our physical limitations. Turning a door knob, walking a flight of stairs, using the restroom will always be a simple, insignificant part of daily living.

Unfortunately, there is a facet of life many of us miss, a perspective we don't share. One that's been created and nurtured by a life experience where even the turning of a door knob is difficult if not impossible. This is, of course, the heartbeat of the ADA. It's

more than making money, it's more than the threat of facing fines, it's meeting the needs of disabled Americans.

It's said that you can't judge a person till you've walked a mile in their shoes. So, to help create a better awareness of just how difficult access/egress can be for some Americans, we decided to take a day and step into the shoes of a disabled person.

Our journey starts from an undisclosed Northwest Chicago suburb, where publisher Marc Goldberg spent a morning in a wheelchair trying to negotiate access to some of the local businesses and facilities. It didn't take long before the trials began.



1. "I had a heck of a time opening the front door to this building. The door closer resisted me so much that my chair kept rolling back. A closer better suited to the task would have helped, but what I really could have used would have been a power door assist."



Continued from page 64



2. "Though this is not a locksmith problem, I was completely unable to enter past the front door due to the staircase. I had no idea how frustrating it could be to be in a wheel chair and face all these problems."



3. "Once I did get up to the second door I was really afraid I was going to roll back down the stairs. I had to get out of the chair to open the door. Of course, most people in wheelchairs don't have that luxury."



4. "In this photo I am trying to open the door without the full use of my hands. It was almost impossible. Now I see why lever sets are so important in these cases."

Wishing to visit an office on an upper floor of a five story building, Marc attempts to open the front door. (See photograph 1.) Obviously adjusted to compensate for winds, the door closer made entry extremely difficult. Normally an easy task, the heavy closing pressure of this door made gaining access a game of trying to maneuver the chair into position before being pushed and pulled into compromising positions by the door. While there was no question that this door served as a severe hindrance to access, door closing pressures for exterior doors are established by the Authority Having Jurisdiction and not ADA guidelines.



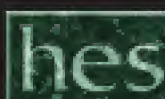
5. "Though it took a lot of time, I was able to call and enter the elevator."



6. "You can see that I am having trouble again with standard door knobs, and this floor was full of them. This building is in violation of many hardware codes and really needs those lever sets."

Entering the main entrance door was just part of the battle, however. As soon as Marc entered, he was confronted by a short flight of stairs. No ramps or lifts were present. Needless to say the chair was picked up and walked up the stairs. A luxury most people confined to wheel chairs don't perform. (See photograph 2.)

Even when at the top of the stairs, Marc faced the next hurdle, opening another door. Unfortunately, the landing between the door and stairs was so narrow, that even if the door were easy to open, there was great danger of rolling back down the stairs.



Continued from page 64



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3. "Once I did get up to the second door I was really afraid I was going to roll back down the stairs. I had to get out of the chair to open the door. Of course, most people in wheelchairs don't have that luxury."



4. "In this photo I am trying to open the door without the full use of my hands. It was almost impossible. Now I see why lever sets are so important in these cases."

Wishing to visit an office on an upper floor of a five story building, Marc attempts to open the front door. (See photograph 1.) Obviously adjusted to compensate for winds, the door closer made entry extremely difficult. Normally an easy task, the heavy closing pressure of this door made gaining access a game of trying to maneuver the chair into position before being pushed and pulled into compromising positions by the door. While there was no question that this door served as a severe hindrance to access, door closing pressures for exterior doors are established by the Authority Having Jurisdiction and not ADA guidelines.



5. "Though it took a lot of time, I was able to call and enter the elevator."



6. "You can see that I am having trouble again with standard door knobs, and this floor was full of them. This building is in violation of many hardware codes and really needs those lever sets."

Entering the main entrance door was just part of the battle, however. As soon as Marc entered, he was confronted by a short flight of stairs. No ramps or lifts were present. Needless to say the chair was picked up and walked up the stairs. A luxury most people confined to wheel chairs don't perform. (See photograph 2.)

Even when at the top of the stairs, Marc faced the next hurdle, opening another door. Unfortunately, the landing between the door and stairs was so narrow, that even if the door were easy to open, there was great danger of rolling back down the stairs.



7. "Here I am struggling to open the bathroom's key in knob lock. It took me a lot of time because of the knob and small key head combination. A lever with large bow key would have made this easy."

Again, this task could not be safely done from a wheel chair. (See photograph 3.)

Through the doors we entered a small foyer that at one corner had a door that entered into a hallway of offices, and on another corner an elevator. The hardware on the door to the hallway had a standard passage function knobset on it. Also present, for aesthetic reasons, were long wooden slats that partially covered access to the knobset. Marc made several attempts at opening the door without the full use of his hands. No success. If Marc wanted to see a client in this hallway, he'd have to find another means of entry. (See photograph 4.)

Not making access to the hallway, we decided to try the elevator. Through the whole process, this was the easiest area by far to access. After pushing the button, Marc eventually maneuvered himself into position for the elevator doors to shut. We were on our way up. (See photograph 5.)

You'd think that the rest of the trip would be easy, but not so. Every door within this building had a knobset, and access was not conducive to individuals with limited hand strength or use of fingers. Again, Marc tries to open a door. This one with a little more success. (See photograph 6.)

One last task needed to be performed before we left this building

- visiting the restroom. In short, it could not be done without assistance. To enter, a key was required. Because the bow of the key was not large enough to grasp, opening the door would not be feasible for an individual with weak hands or loss of fingers. (See photograph 7.)

Still, even if turning the key were possible, proceeding any further was impossible. After opening the door, the wheel chair just fit the doorway but could go no further. To reach a toilet, Marc would have to proceed through an even narrower doorway. To use the sink it was necessary to

make a 90 degree right turn through another narrower doorway. In other words, neither the toilet or sink were accessible to a person in a wheel chair.

Plus, should Marc have gone into the restroom any further, he would have been trapped by a closing door. Without the room to maneuver and turn the wheel chair around, there was no way to grasp and open the door to exit. (See photograph 8.)

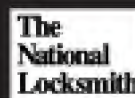
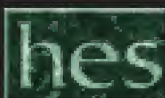
After touring this building, it becomes much more apparent to me why ADA enforcement is necessary.



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SELLING THE ADA



SELLING THE ADA

As it stands, however, with or without ADA, there are only a few avenues opened for the disabled. First, the volunteer participation of companies and institutions around the country, who, along with the advice and recommendations of their local locksmith, can help make their building more friendly.

Second, many jurisdictions across this country do not have the resources or the knowledge to adequately enforce this law. Thus, when coming upon a building as we just tried to tour, the disabled are left with only one recourse. (See photograph 9.)

Now, as a locksmith, there is no question we cannot correct all the access and egress problems this type of building poses. In fact, many of the barrier problems will need to involve some major remodeling. However, where hardware is concerned, locksmiths can get involved. If not for the money, if not to serve their customer's best interest, then for the thousands of Americans that need just a little help to make life possible.

On the other hand, when walking through your next building, consider



8. "Once I did open the bathroom, it was impossible to use due to narrow doors and the small configuration. Again, not a locksmith problem, but if you find bathrooms like this in a building, start looking at the hardware too."

your surroundings. Could the entrance doors use a closer adjustment, or possibly a power door assist? Is all the hardware ADA compliant and operational? Are large bow keys used and available?



9. "This attorney's office was close to the building in which I had so much trouble. The law office was equipped with proper ADA hardware and if I filed a complaint against the first building, the owner would be spending a lot of money on lawyers instead of just hardware."

Making these observations can offer you the opportunity to aid those with disabilities, advise your customer of possible ADA violations and the accompanying penalties, and, of course, make more income. **TL**



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BUSINESS BRIEFS

News from the Locksmithing Industry

INDUSTRY INTERVIEW...

In search of our next interviewee, *The National Locksmith* made a quick stop in Reamstown, Pennsylvania. Here we caught up with Paul Kosakowski, AHC and vice president, sales and marketing for the DORMA Group. Despite his busy schedule, Kosakowski was willing to share his perspective on the locksmith industry.

How long have you been in the field of door hardware, Paul?

For over 30 years, always having the good fortune to leave one position for a new and more challenging opportunity in the industry.

Could you describe a little of the history of how you came into this field?

I took a semester off from college in 1964 and went to work at American Hardware, before it was acquired by Emhart. I started in the factory keying and testing cylinders, cabinet locks and padlocks. I then advanced to the Key Records Department, then to inside and outside sales. I stayed with Emhart just under 25 years, leaving as vice president of sales for the Hardware Division, with responsibility for Russwin Corbin and Corbin Cabinet Lock.

I first joined DORMA Door Controls in 1988 as vice president of sales and marketing, attracted by the company's commitment to excellent products and superior service. The first tour of duty with DORMA ended in 1991, with an opportunity to join ILCO Unican Simplex as vice president and general manager.

I later left Simplex for the opportunity to develop and introduce PDQ's first domestically manufactured lock product line as vice president of sales and marketing.

In December, 1994, I received a call from DORMA Group President Don Bixby. Don had a new vision for DORMA, and invited me to help the company achieve it.

I was happy to rejoin DORMA because the company is an independent manufacturer, solely dedicated to supporting the hardware

business and the independent businessmen who are both the distributors and end users of our products. I think our future is very bright. DORMA is the largest door closer manufacturer in the world, and I see great opportunities for DORMA to be to the United States' hardware industry what it is worldwide.

What has been the most enjoyable aspect of working in the industry?

The people contact. The industry offers you the opportunity to interact on a daily basis with a diverse group of real people, from small businesses as well as large ones.

What is the most challenging aspect of working in the industry?

The biggest challenge today is separating tradition from reality in our industry. The importance of tradition in this industry can't be overemphasized, but current reality doesn't always support it.

People need to make decisions based on what is best for their customers and their own future. The question has to be what the suppliers are doing today in terms of product quality, customer service, professional standards, industry support and the like not what they did when our fathers were in business.

What changes have you seen taking place in the locksmith industry?

It has been apparent to all of us for some time that the locksmiths and distributors who won't change are not surviving. The traditional heart of the business has been changing a cylinder on the house or the car. The home centers and other mass retailers in the building supply, D.I.Y. and hardware field are taking those services away.

Locksmiths have had to replace that business, to strike out into new and related fields. They have to find new customers and new ways to be of service to those customers.

Any other trends of interest?

We have seen the emergence of locksmith distributors who are doing an excellent job of providing educational opportunities for locksmiths, and supporting their



**Paul Kosakowski, Vice President,
Sales/Marketing DORMA**

Continued from page 70

efforts to expand their product and service offerings.

This is a group of distributors who recognized that to be competitive, they had to make a value-added contribution for their customers.

What role do you see for suppliers in these trends?

Our commitment as businessmen has to be to grow our own businesses. The best way to do that is to support the growth of our customers. Locksmiths are increas-

ingly calling on an important group of end users. Broadening their services to this group to include a wider range of hardware is a new opportunity for them and for us.

Our challenge is to keep working with locksmiths to help them to diversify their product line. They can be selling, installing and servicing closers, exit devices, stops and holders, electromagnetic locks, even low energy power operators. They can be selling and servicing all types

of door hardware, and they should be.

Is there some key contribution suppliers should be making here?

We need to take an active role in providing educational opportunities, and helping them achieve the highest levels of professional expertise. We need to increase our involvement in seminars and shows.

Our job is to provide the tools that will make the opportunity a reality.

TNL



HPC is proud to announce the **11th** winner in their monthly Codemax™ drawing. HPC has awarded a Codemax™ computerized key machine to **Ed Roberts of San Lorenzo Valley Lock, in Brookdale, California** on **January 1st**. It was purchased through **Clark Security Products in San Diego, California**. HPC will be awarding a Codemax™ to a lucky locksmith every month through February 1996. To qualify, locksmiths simply need to purchase any 1200 Series Key Machine and send in their registration card along with a copy of their distributor invoice to HPC. Once this is done, they will automatically be entered in the contest. Entries will remain eligible until the conclusion of the contest. A total of over \$47,000 will be awarded. There is still **ONE** more chance win!

American Lock & Supply has announced the establishment of a new division, effective January 1, 1996. The new division will be dedicated to helping security professionals meet the increasing demand for electronic security products.

American Lock Company recently reorganized to form the

Professional Security Group, a sales team devoted to serving the commercial security and industrial safety markets.

The Professional Security Group is led by **David L. Anderson, Sales Director**, who has also held several other customer service and sales management titles since 1987.

Aiphone Communications, announces that their full line of easy-to-install, two-wire audio and



video entry security intercom systems are now stocked by the leading national locksmith distributors. For product information and a list of distributors, call 1-800-692-0200.

Software House is pleased to announce the addition of two new members to its management team.

Margaret McClure, is newly appointed **documentation manager**. In this role, Margaret will oversee production of end-user manuals, technical bulletins and other pertinent technical documentation.

Patricia O'Brien Gifford, is newly appointed **product marketing**

manager. Patti will be responsible for the development, implementation and execution of product strategies for the Software House product lines.

David Loughran, AHC/CDC, and Joseph Yatsinko, DAHC,



Mr. David Loughran Mr. Joseph Yatsinko

have been named to positions in the Marketing Department of **Yale Security, Inc.**

Richard J. Barnhard, AHC/CDC, assumed the position of **DHI President**.

Other officers installed include: **President-Elect, Robert J. Jutzi, AHC; Vice-President, Daniel J. Heinz, AHC; and Vice-President, Susan P. Flowers, AHC/CDC.**

Interactive Technologies, Inc., (ITI) has named **Brent Crego** to

head its **Security Pro Program**. A nine-year veteran of the security business, Crego was tapped to take the successful Security Pro program into its next phase. TNL



The LIGHTER Side

Words Of Wisdom



by
Sara
Probasco

I've been doing it again - reading those little books filled with witticisms and sage advice about business and personal relationships. You know the kinds of sayings. We see them hanging on people's walls or propped on desks and bookshelves. Here are a few I thought might brighten your day. Feel free to pass them on, or use them in making posters of your own.

ALWAYS be a little kinder than necessary. - James M. Barrie

ALWAYS live in the ugliest house on the street - then you don't have to look at it. - David Hockney

ALWAYS forgive your enemies - nothing annoys them so much. - Oscar Wilde

ALWAYS live within your means, even if you have to borrow money to do so. - Josh Billings

NEVER underestimate the power of stupidity. - Robert Heinlein

NEVER eat crackers in bed - Anonymous

NEVER get involved with someone who wants to change you - Quentin Crisp

NEVER become involved in business or romance with someone who has nothing to lose. - Anonymous

NEVER let anyone outside the family know what you're thinking. - Marlon Brando in The Godfather

NEVER judge a book by its movie. - J.W. Eagan

NEVER economize on luxuries. - Angela Thirkell

NEVER buy something you don't need just because it's on sale. - Anonymous

NEVER speak more clearly than you think. - Howard Baker's father

NEVER fight with an inanimate object. - P.J. O'Rourke

NEVER trust a skinny cook. - Anonymous

NEVER insult an alligator until after you've crossed the river. - Cordell Hull

NEVER have yourself tattooed with anybody's name. - P.G. Wodehouse

NEVER look back. Something might be gaining on you. - Satchel Paige

NEVER co-sign anything. - Al McGuire

NEVER lend your car to anyone to whom you have given birth. - Erma Bombeck

NEVER eat Chinese food in Oklahoma. - David Bryan

NEVER wear anything that scares the cat. - P.J. O'Rourke

NEVER call your girlfriend "Tina" if her name is "Vivien." - George Underwood

NEVER eat at a place called Mom's,

NEVER play cards with a man named Doc, and **NEVER** lie down with someone who's got more troubles than you. - Nelson Algren

The first law of holes: if you are in one, quit digging! - Denis Healey

When in charge, ponder. When in trouble, delegate. When in doubt, mumble. - James H. Boren

Money isn't everything, unless you don't have it. - Anonymous

One should try everything once, except incest and square dancing. - Arnold Bax

Life can only be understood backward, but it must be lived forward. - Kierkegaard

Life is too short to spend it balancing a checkbook. - Howard Ogden

Be prepared; be sharp; be careful; use the King's English well; get paid for what you do. - Robert N.C. Nix

Put all your eggs in one basket, then watch the basket. - Mark Twain

The safest way to double your money is to fold it over once and put it in your pocket. - Kin Hubbard

Beware the young doctor and the old barber. - Ben Franklin

Trust everybody, but cut the cards. - Finley Peter Dunn

Make haste slowly. - Ben Franklin

Make three correct guesses in a row and you will be known as an expert. - Lawrence J. Peter

Beware any business enterprise that requires new clothes. - Thoreau

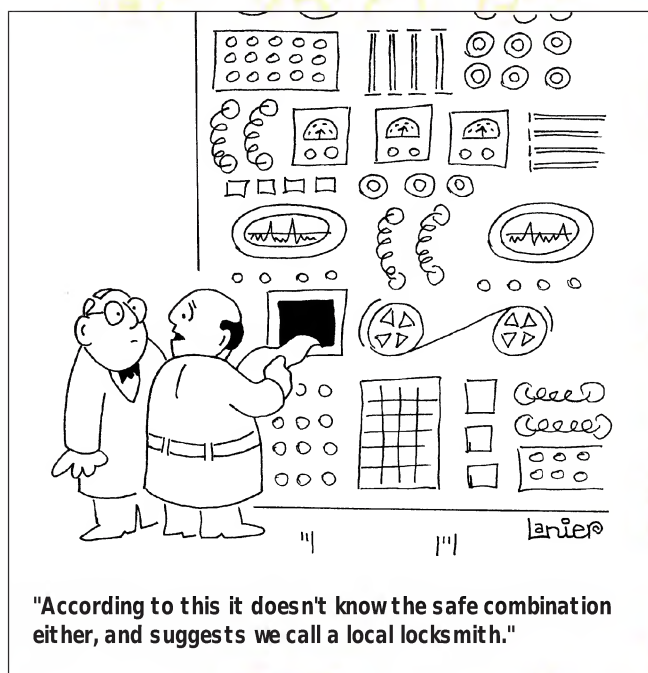
No one is ever old enough to know better. - Holbrook Jackson

You can never be too paranoid. - C.E. Crimmins

The two most common elements in the known universe are hydrogen and stupidity. - Harlan Ellison

An ounce of sequins can be worth a pound of home cooking. - Marilyn vos Savant

Think for yourself and question authority. - Timothy Leary



In life, be a moving target.
- Raoul Lionel Felder

Resist much; obey little.
- Walt Whitman

Don't compromise yourself. You
are all you've got.
- Janis Joplin

If you tell the truth, you don't need
a good memory. - Mark Twain

Dare to be naive. - R.Buckminster
Fuller

Don't let them scare you.
- Elmer Davis

Believe nothing, no matter where
you read it, or who said it - even if I
have said it - unless it agrees with
your own reason and your own
common sense.
- The Buddha

You've got to be very careful if you
don't know where you are going,
because you might not get there.
- Yogi Berra

Don't ask the barber whether you
need a haircut. - Daniel S. Greenberg

Rule #1: Don't sweat the small stuff.
Rule #2: It's all small stuff.
- Dr. Robert S. Eliot

The only way to eat an elephant is
one bite at a time.
- General Creighton W. Abrams

All you need to be assured of
success in this life is ignorance and
confidence.
- Mark Twain

Key to success: Rise early. Work
late. Strike oil.
- J.Paul Getty

To succeed in this world, it is not
enough to be stupid, you must also be
well-mannered.
- Voltaire

People will accept your idea much
more readily if you tell them Benjamin
Franklin said it first.
- David H.Comins

When your work speaks for itself,
don't interrupt.
- Henry J.Kaiser

If at first you do succeed, try to
hide your astonishment.
- Harry F.Banks

Gullibility is the key to all
adventures. - G.K.Chesterton

Follow your bliss!
- Joseph Campbell



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To Finish First!

For years the hardware industry has pushed to create the strongest and longest lasting product. From a mechanical perspective, most have gone beyond the call of duty by offering lifetime warranties on the mechanical operation of their hardware. Today, manufacturers are moving to complete that last link in the customer satisfaction race - they're racing for the finish line. Offering stronger, longer lasting finishes, many with a lifetime warranty.



Baldwin providing Lifetime Finish on their decorative solid brass hardware. Warranted for life of product from tarnishing and mechanical defects.

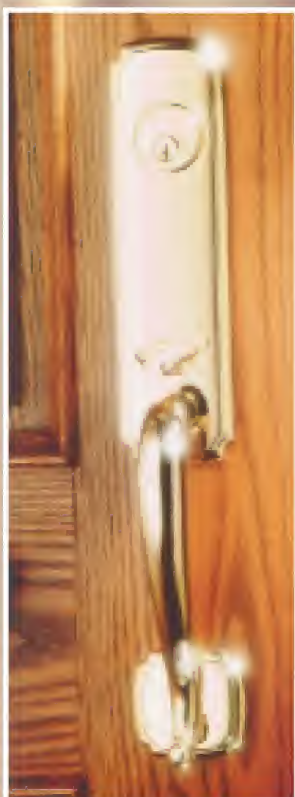
Master Lock Company's Durashine™ provides full lifetime mechanical warranty and full 10-year finish warranty on entrance handlesets.

G.U. Hardware multiple lock door hardware. Made of forged brass levers and escutcheon plates.





Weiser Brilliante™ is Weiser's latest in finishes. Full lifetime warranty on mechanical components and finish.



Jado's Diamond Finish available on Jado's fine hardware products. Full lifetime finish warranty.



Outwater Plastic Industries, Maroni push-to-open door lock system. Zinc plated steel or solid brass interior parts.



Schlage's Mediterranean Elite Series for high end residential and light commercial, is now offered with Schlage's lifetime warranty Ultima™ finish.



S. Parker residential handlesets offered in solid brass. Deadbolt includes hardened steel rotating core.

Safe repair Made Easy

part 2



After learning a few techniques for safe repair, we follow up with welding.

By: Garry Guinn

Last month we covered a couple of techniques for finishing a safe repair, and, as mentioned, welding will be touched on in this article. For the purposes of this article, two similar welders were tested in a "real life" situation. The Lincoln, SP100 (replaced by model 125) and the Miller Millermatic 90 (replaced by model 130). (See photograph 1.) Both are very good reliable welders that operate on ordinary 110 VAC electricity. Both welders are capable of MIG (metal inert gas) welding when set up with the proper gas bottles and accessories.



1. A Miller Millermatic 90 (left) and Lincoln SP100 were the contestants of our test.

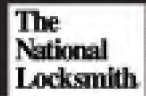
Although performance is enhanced somewhat by the use of gas, this advantage is not, in my opinion, worth the extra weight, cost, bulk, and worry (empty bottle) to warrant it's use. Both welders are set up with an inner flux core wire which does the job very well indeed. The cost difference between the two models is really not that much now (check your local welders supply store.) Also Miller weighs in at 75 pounds as opposed to the Lincoln's 42 pounds this can be quite a difference, especially if your using commercial airlines to get to

your job site. About durability, I might note that even though my Miller definitely qualifies for frequent flier miles and has no doubt been handled with tender loving care by the baggage handlers, it has never failed to perform each and every time!

Present for the test were Todd Kern CPS (owner of the Lincoln), Bruce Tillman, a certified welder (who has forgotten more about welding than Todd or I will ever know), and myself (owner of the Miller). An Eagle Floor safe that had been rusted shut then opened by Todd was our subject. The safe was drilled in three places (proof that competent safemen do not always open every safe with a 1/4" hole in 15 minutes.)

To fill the drilled holes, we used ball bearings. All balls on the outside and inside were welded, with balls in the middle still loose. The welds were ground flat, then because of the severe rust, Todd had the door sandblasted before finishing. Todd does a pretty neat trick for painting; he uses a two can system for crafts that produces a granite rock look (Krylon-Stone Craft #8201 Black Granite.) No need to fill and sand if you use this stuff, and it looks great! Were we discussing Welding?

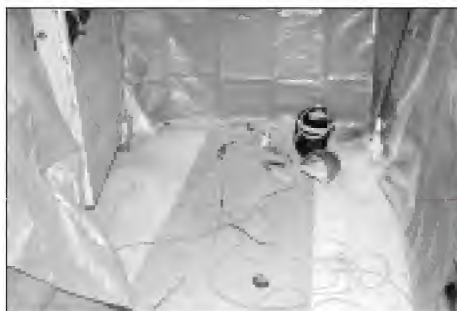
The conclusion was that both welders were more than capable of repairing hole perforations or doing any light welding. Bruce Tillman did say the Miller had much better penetration and produced a better "bead" even though both welders are rated about the same (about 90 amps output.s) This doesn't really matter all that much when you welding a 1/2" or smaller hole. However, the Miller outperformed the Lincoln by approximately 300 percent in speed



2. For seam separations such as this, a Miller was superior to the Lincoln. For safe perforation, however, the Lincoln was preferred.

Should you decide a welder will be good for you, practice a little with it and you will discover all the amazing things you can do besides safe work, like making tools for safe work. Besides, GSA repairs require welding, but that's another story. For repair of multiple holes, you just can't beat a portable wire feed welder. Please bear in mind you should protect the safe with masking tape, wear gloves and helmet and put pieces of protection on the floor, hard board is fine. If you cup your glove over the hole and use short bursts, you will find very little heat and weld spatter problems. Just experiment at your shop to come up with what works for you. (See photograph 3.)

I recommend weld repairs to start on the inside; first weld an appropriate size ball at the hardplate, then insert another ball from the front, followed by a shot of liquid nails in the squeeze tube (I like this because it's resealable and doesn't require a caulking gun) to



3. When welding make sure to protect the entire area surrounding the safe (floor, carpet, walls, etc.) as well as gloves and helmet for your own protection. To control smoke a leaf blower motor and vinyl duct (dry tubing) were used.



and appearance of the bead when we welded a couple 1/4" thick straps together with a fillet weld (not that you would ever do that in safe work).

If you see the need to replace hinges on a TL-15, or repair a sagging door due to seam separation on a composite TL-30, choose the Miller. (See photograph 2.) If your going to be using the machine for safe perforation repair, choose the Lincoln; it is by far the better machine in terms of cost, size and weight. The point is, that after you weld a hole and grind smooth, you can't tell the difference!

prevent the ball from being "sucked" out. Continue in this fashion until the last ball can be welded in place, then grind smooth, fill, file, sand, and, finally, paint. You can vary the security by welding a screw, drill, tap, or rod etc. The variations are up to you, just think about what you want to accomplish before you begin. Be aware that if you fully weld a ball, it will likely become annealed (not hard anymore). Light tack welds can reduce the annealing process. Experiment, have fun, impress your customers with a professional job! **TNL**



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2nd Prize **Sargent & Greenleaf 6120 Electronic Safe Lock**

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3rd Prize **Curtis 1100 Duplicator**

The Curtis 1100 generates fast, accurate duplicates for standard commercial, residential and automotive keys. Machine includes cutter brush and eye shield.



4th Prize **Pak-A-Punch**

A-1 Security Mfg.'s hand held key cutter. Easy to install kits allow cutting for most domestic and foreign automobiles, as well as some commercial and residential keys.



5th Prize **\$500 In ASP Auto Locks**

Your choice of \$500 in Auto Security Products locks and service kits. New addition of Ford 10-Cut line makes this prize especially attractive.



6th Prize **DeWALT Cordless Drill**

DeWALT's DW991K is the toughest cordless drill around. 14.4 volt, adjustable clutch, makes this unit one of the most versatile offered today.



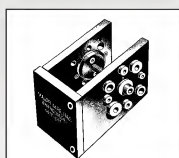
7th Prize **\$250 In All-Lock Locks**

Receive your choice of \$250 in All-Lock locks and pinning kits. A vast array of domestic and foreign service kits and locks from which to choose.



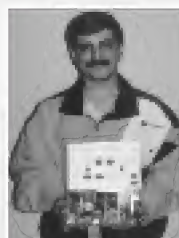
8th Prize **Belsaw 200 Key Machine**

Duplicate or cut by code, cut flat steel keys. Complete machine with motor, three cutters, guides and instructions. Built in micrometer.



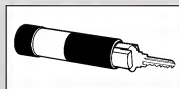
9th Prize **Major's HIT-111 Drill Guide**

Fast, error free door preparation for lever installation. Easy mounting and variable guide holes to fit most major manufacturer's levers.



10th Prize **Strattec Jacket & Pinning Kit**

Light weight Strattec jacket featuring the distinguishable black, red and white Strattec colors and logo. Plus, a Strattec #702962 Chrysler Double Bitted service kit, filled with tumblers, springs, facecaps and miscellaneous parts.



12th Prize **Framon Impressioning Handle**

Take control of your impressioning with Framon's impressioning handle. Lightweight and balanced, the handle facilitates creating the desired impression marks needed for quick key generation.

Take a look at the preceding offerings for the 1996 Technitips contest!
Don't forget to contact those companies that donated the prizes and let them know how much their gift is appreciated.

For all you 1996 Tipsters — Good Luck!

TECHNITIPS

Helpful hints from fellow locksmiths

**Send in your
tips and win.**

HOW TO ENTER

Simply send in your tip about how to do any aspect of locksmithing. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Write your tip down and send it to: **Jake Jakubowski, Technitips Editor, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107** or send your tips via E-mail to the E-mail address posted in the upper right hand corner of this page. So get busy and send in your tips today. You may win cash or merchandise. At the end of the year, we choose winners for many major prizes. Wouldn't you like to be a prizewinner in 1996? Enter today! It's easier than you think.



by
Jake Jakubowski

BEST TIP OF THE MONTH

If your tip is chosen as the best tip of the month, not only do you win the All-Lock A-6200 Auto Service Kit, but you also automatically qualify to win one of the many excellent year end prizes!

EVERY TIP PUBLISHED WINS

Yes, every tip published wins a prize. If your tip is printed, you'll win \$25 in Locksmith Bucks. You can use these bucks to purchase any books or merchandise from **The National Locksmith**. Plus, be ready for Jake's Grab Bag prizes! Remember, everyone wins. (Please remember to include your complete mailing address - we cannot mail prizes to P.O. Boxes.)

America Online: NATL LOCK

Use the above address if you are on AOL.

Internet: natllock@aol.com

Use the Internet address if you are not on AOL.

These Prizes Awarded Each Month!

- All-Lock A-6200 Auto Service Kit
- American Lock & Supply \$50 Merchandise Certificate
- HPC Pistolpick
- Sargent & Greenleaf 4400 series safe deposit lock
- Silca Keyblanks (100 Blanks)
- Pro-Lok PK15 Professional Lock Pick Set
- Tech-Train Training Video
- Sieveking Products EZ-Pull GM Wheel Puller
- Major Mfg. Products
- The Sieveking Auto Key Guide

Last month, you probably saw the list in The National Locksmith where we gave away all manner of good stuff for the 1995 The National Locksmith's Technitip Contest year-end prizes. And I'm willing to bet that those prizes really got some folks' coffee a' perkin'. Especially folks, like Dennis Harmon who won the Silca Matrix, or Brad MacKenzie who won an HPC Blitz machine. Just for sending me an idea that I could pass on to my readers!

Well ... this year ... it could be your turn. All you have to do is write down an idea or trick that you think you'd like to share with the rest of the readers. If I publish it, you'll win some locksmith bucks (Twenty-five,) a pair of folding pliers with a bunch of tools in the handle and, at the very least, one of my grab bag prizes. Or, you could win one of the main monthly prizes listed above.

By doing so you would qualify yourself for the 1996 year end drawing and win anything from a code machine, key machines, pinning kits, books, and gracious knows what-all! and it doesn't matter if you send me a tip by mail, E-Mail, Federal Express, UPS or carrier pigeon, just so long as you send it. But! You have to write down your Street Address! Prizes cannot be sent to P.O. Boxes. So, help me out by sending me your street address, especially if you send your tip by E-Mail!

Speaking of 1996, this month's column marks the beginning of my third year editing this column. There's a whole bunch of folks I could thank for that, but mostly I have to thank the tipsters who made it possible by sending me the tips. Without you, this ol' boy would have been between a rock and a hard place, fer sure.

All-Lock Auto Service Kit Winner GM Cylinder Holder

You can make a simple fixture for holding a GM door or trunk cylinder out of a 5/8", 90° copper elbow, sweat joint that plumbers use. (See illustration 1.)

Simply put one end of the elbow in your bench vise and apply enough pressure to flatten the radius a little.

This will be the end you will use to hold your fixture in place in the vise on your service truck or the bench vise in your shop.

As shown in the illustration, use a Dremel Tool, grinder or saw to open a slot 5/16" wide and approximately 5/8" long with the closed end being rounded as shown.

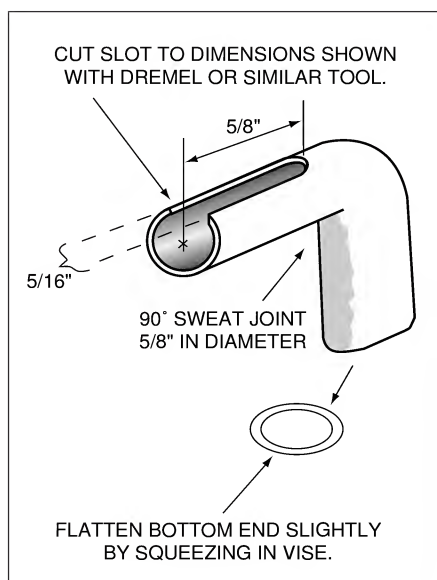


Illustration 1

To use the fixture, simply clamp it in place in your vise.

Next take the GM plug and put pressure on the side bar with your finger while raking the wafers until the side bar depresses.

When the side bar "seats," continue applying pressure with your finger and slide the plug into your home-made holding fixture.

The fixture will hold the sidebar in the depressed position and allow you to use both hands to manipulate decoders, lights or to sight read the tops of the wafers to determine the bittings necessary to generate a key.

This is a quick and easy tool to make and the out-of-pocket costs are next to nothing.

Bob Davison
South Dakota

**American Lock & Supply Certificate
Winner
Quick Key**

Occasionally we get a distress call from a business customer where the plug has come completely out of the cylinder. The customer is in a panic because they have springs and pins all over the place and the door is still locked.

As you are aware, the situation is generally caused by the tailpiece on the back of the plug falling off because the screws came loose. The idea, of course, is to quickly unlock the door for the customer so they can proceed with their opening - and you can repair the problem.

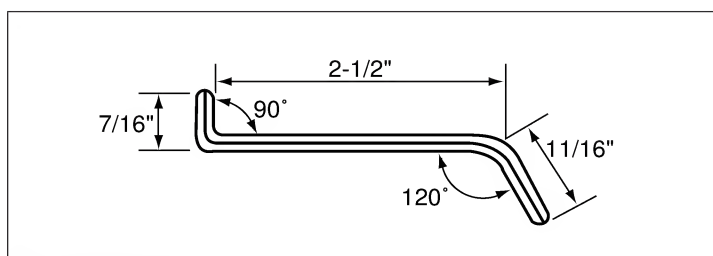


Illustration 2

To help facilitate this type of opening, we developed a small tool to quickly manipulate the lock and open the door for the customer. It is a 2mm size Allen wrench that we have bent to just the right dimensions. (See *illustration 2.*) This tool is small enough to fit in your pick case and although you won't need it often, it's nice to have it available when you do.

As you can see in the illustration, the shaft is 2-1/2" long. The smaller end (7/16") is bent to a 90° angle. That end is used on narrow stile, aluminum doors with Adams Rite or A/R type mortise cylinders. The end fits right through the plug hole and functions exactly the same as the tailpiece would have had it not fallen off. Just a quick flick of the wrist and the door is unlocked.

The longer end (11/16") is used in traditional type mortise cylinders that use the longer, standard style (Yale, Russwin, Schlage, Segal, etc.) tailpieces. That end must be bent to a 120° angle because the longer length won't fit through the plug hole if it is bent to a more acute angle.

The tool is simple to make. A vise, propane torch to heat and a pair of pliers to bend are all you need. Test your new toy in a cylinder with the plug removed. If it needs adjustment, simply file and rebend as necessary. You'll be impressed at how easily the tool works and the customer will be impressed when you prove to be the person "with the correct tool for the job."

Joseph T. Bergen
New Jersey

**HPC Pistol Pick Winner
Easy VATS Decoder**

Here's a tip that can save money for a locksmith that wants to do VATS work but doesn't feel they want to spend, or can't afford to spend, money for a VATS decoder. The good news is that this decoder will decode regular VATS keys as well as the new double sided VATS.

Purchase an OHM meter at any hardware store or Radio Shack. Carefully remove the clear plastic face cover that protects the gauge. Zero out the needle with

the adjustment screw. Put a VATS key between the probes and mark or scribe a line where the needle stops. At the top of that line, mark or inscribe the numerical value (1-15) for that key blank.

Do this with all 15 keys and you now have a VATS decoder. Put the cover back on and you're ready to start decoding VATS keys.

I made mine back in 1986 when the VATS system first came out on the Corvette. Since then, I guess I've decoded hundreds of VATS keys with 100% accuracy.

Just make sure that each time you use your decoder you "zero" the meter out.

Kenneth C. Eastwood,
Utah

Editor's Note: Ken's tip is valid and will work well, and it is an economical approach. For those of you who might not want to bother with taking the face plate off the OHM meter, decoding each key and marking the meter, here's a conversion chart of VATS-to-OHM's values:

VATS OR KEY #	RESISTANCE IN OHM's
1	402
2	523
3	680
4	887
5	1,130
6	1,470
7	1,870
8	2,370
9	3,010
10	3,740
11	4,750
12	6,040
13	7,500
14	9,530
15	11,800

Thanks for the tip Ken.

**S&G 4400 Series Safe Deposit Box
Lock Winner
Paper Clip Shim**

While duplicating a key for an older Yale lock, I found that the copy key and the new blank would not hold properly when clamped into my machine's vise. Not having anything else to shim the blanks with, I tried using a plastic coated paper clip.

When I bent the outside wire to about a 90° angle (away from the loop) I found that the plastic coated wire fit nicely into the narrow groove of the key. When I tightened the vise down, the plastic coated clip held both keys securely allowing for successful duplication.

I also found the end with the loop is an excellent shim for cutting a double sided key as it fits perfectly in the "offset groove" which allows my machines vise to get a firm and solid grip. The plastic coating on these paper clips seem to offer a better grip than a plain wire shim. And, they won't mar the customer's key or the blank you're duplicating.

Richard E. Bentley
Missouri

**Silca Key Blanks Winner
Sticker Ad**

As you know, routine locksmithing frequently involves repinning lock cylinders so the old key will no longer work. Whether it's new tenants in an apartment, lost keys for a home or business or a simple rekey because of an employee change-over, I have found using a small company label's very helpful - in a number of ways.

If I have a large job involving numerous cylinders to be rekeyed or master-keyed, I stick one of my label on the face of the lock or cylinder as each one is rekeyed. That helps me keep track of my completed work.

On smaller jobs, or apartments, it acts as a reminder of which cylinders I have re-pinned, and it gives new tenants a sense of security knowing that their apartment locks have been recently changed. The label also acts as a prompt to those customers just in case they need other work done.

In addition, I find these little labels great advertising!

Steve Wade
Illinois

**Major Manufacturing Product Winner
Midget Possibilities**

I was asked to make keys for a 1977 MG Midget. According to my Baxter code books, there is no code on the door key (Ilco S71B) or the ignition (X-51).

When I arrived at the job-site, I decided to try to make the door key from the glove box. When I removed the two screws that held it in, I found the cylinder has 9-1-6 stamped on it. My Baxter code calls for an "FS"

series for these locks and I decided to try FS-916. It worked perfectly.

I tackled the ignition by removing the steering column shroud and steering column bolts to get to the break-a-way bolts. On the lock mounting plate, I saw the number, 426 stamped on it.

The Baxter code books called for a four number code (Series 2000 to 3000) for the ignitions on these vehicles. I decided to try 2426. It also worked.



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I guess it really pays to try alternatives before disassembling the locks to read the wafers or try to impression them, etc.

Richard A. Holiday
Illinois

**Sieveking GM E-Z Wheel Puller Winner
Quick 10-Cut Fix**

When I arrived to open a 1992 Mercury Topaz, the owner told me that the key would turn, but the door would not unlock. I wedged the window and could see that the linkage had been knocked loose from the plastic pawl on the back of the lock. The pawl itself was laying in the bottom of the door cavity.

Unlocking the door did not present a great problem since I simply caught the linkage rod in the cut-out of my Slim-Jim, twisted the "Jim" to bind the linkage and lifted up on the rod to unlock the door.

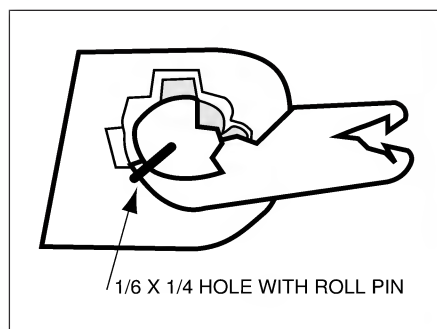


Illustration 3

Next I had to remove the door panel to retrieve the pawl, and found it was broken. Because I did not have a replacement available, I put a drop of Krazy glue on the pawl, pushed the pawl down on the plug and held it for a minute until the glue set.

Knowing that this wouldn't hold long, I drilled a 1/16" hole through the pawl and into the tailpiece of the plug (about 1/4" deep all together). Then I drove a 1/16" X 1/4" roll pin through the pawl and into the plug as shown in illustration three.

Apparently the customer has had no further problems with the lock as I have seen her several times since then and she has never indicated that she has had any trouble with the lock.

Mark Caudill
Texas

Editor's Note: Both All-Lock and Auto-Security Products carry a vast

array of the Ford locks, facecaps and pawls. While Mark's tip is great in a pinch, consider purchasing assortment service kit from either manufacturer and be ready at all times.

**Pro-Lock PK15 Professional Pick Set
Winner
Honda Trunk Entry**

My customer had locked the keys to his Acura in the trunk.

I immediately opened the door and tried the trunk release which did not open the trunk as I expected. The customer then told me that he had deactivated the trunk release button by turning off the switch in the glove box.

Since the glove box was also locked, I tried to pick it, but after a few minutes, it was just as locked as it was when I started. As a result, I decided to see if there might be another way into the glove box that would give me access to the switch that would arm the trunk release mechanism.

Using a small wedge, I placed it in the upper left hand corner of the glove box's door and gently pried outward until I had enough room to insert my probe light to see if I could see the switch. The rocker-type switch was straight in from where I had pried open the glove box door and was easily reachable with a hook pick.

After turning the switch to the ON position, it was a simple matter to activate the trunk release and retrieve my customers keys.

Douglass D. Dorr
Ohio

**Sieveking Auto Key Guide Winner
Bumper Guard**

Whenever I am called to rekey a house, I look at all of the outbuildings and gates, as well as the garage. While rekeying the house, I let the customer know that I can rekey all the gates, etc., to the same key if they would like. I also point out that if the property needs rekeying later, it can be done without the necessity of purchasing new padlocks, etc., for the outbuildings and gates since all of the cylinders would be on the same keyway.

I find that the majority of folks opt to have everything rekeyed since it means that they will have fewer keys to keep track of. And, this is also an opportunity for me to sell padlocks for

the gates, etc.

Another area that I check out is the wall behind the doors in the home to see if the inside knob has been banging against the wall and leaving an indentation. I am usually able to sell the homeowner, realtor or property manager "Door Bumper Wall Protector Cover Plates" from Ultra Hardware. These plates stick to the wall over the hole or behind the impact point of the knob and prevent further damage to the walls.

These protectors sell on-site for \$5 each, installed. I buy them from Ultra for 75¢ each.

Property owners, property managers, realtors and homeowners readily know that it will cost more than \$5 to repair a hole in the wall. Catering to your customer's needs with the right product, at the right time and the right price is a tip that's sure to make you money.

Lee Whiteford
California

**Tech Train Video Winner
Suitcase Key Comparison**

This should be helpful to the locksmith that is called upon to duplicate or originate keys for the popular Seward and Everlite America trunks and foot lockers.

Although not identical to the original keys in every respect and dimension, the Ilco T-44 will properly operate both brands of trunks and foot lockers since both have the same style of simple warded lock.

Peter Schifferli,
New York

**Grab Bag Prize Winners
Mortise Cylinder Clamp**

Here's a simple jig that you can make with a piece of scrap lumber, a bolt and a wing nut for holding mortise cylinders steady while you work on them.

Use a piece of scrap lumber 4" long, 2-3/8" wide and 1 1/4" thick. As shown in illustration four, drill or cut a 1-1/8" hole at the top edge of the piece of lumber. At the bottom of the cylinder hole, use a saw to cut straight down through the wood approximately 2-1/2".

Now measure down 2-1/4" from the top edge of the and drill a 1/4" hole completely through the block

Continued on page 104

Continued from page 102

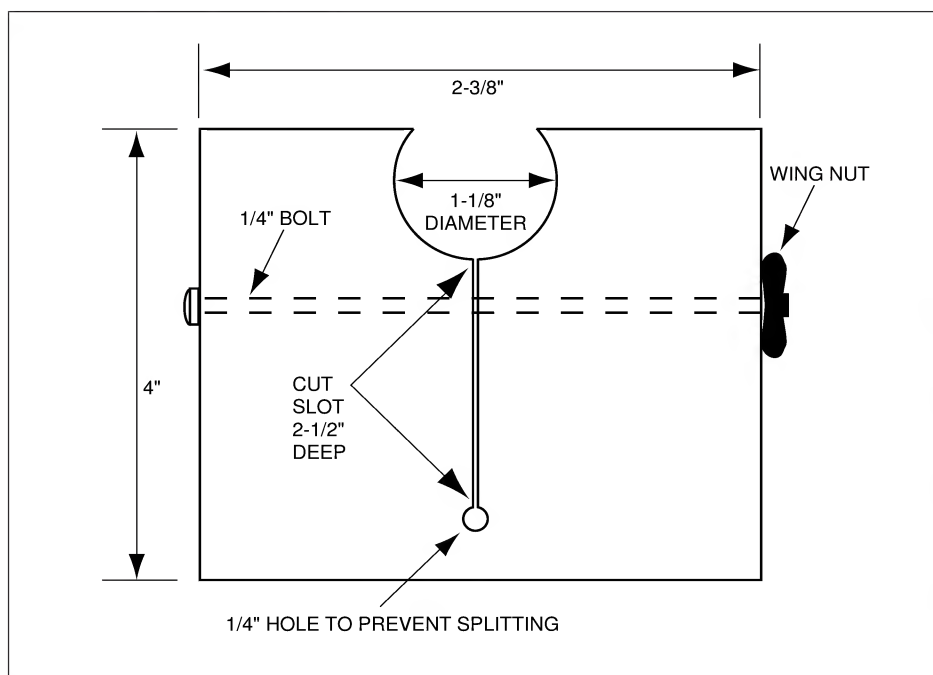


Illustration 4

from edge to edge. Insert a 3" or 4" bolt through that hole and put a washer and wing nut on it.

To use the jig, simply insert your mortise cylinder in the large hole at the top end of the jig, and tighten the wing nut until the cylinder is gripped

tightly in the jig. The jig will firmly hold the mortise cylinder and allow you to remove hard to turn screws or whatever is required with both hands free to do the work.

Editor's Note: Royce's idea is a workable one. I took the liberty of adding one more thing to his jig and that is the 1/4" hole at the end of the vertical saw cut. This hole will allow you to put more torque on the wing nut and bolt while lessening the chances of splitting the wooden block. Hope you don't mind my two-cents worth Royce!

Fish Hook Key Extractor

I'm an avid fisherman and have found a practical locksmith use for some of my old fish hooks. They make excellent key extractors.

Just cut the eyelet off the one end and use a propane torch, a vise and Vise-Grip pliers to straighten the curved end of the hook.

You can use a pin vise or an Exacto Knife handle to hold the straightened shank of the fish hook while you use this recycled fish hook to "fish" broken keys out of keyways, hold dust covers open and all sorts of little tricks.

Just suit the size hook to the job that you want to do.

Royce Evans
Ohio

Larry P. Brown
Ohio

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BITS & PIECES

Informative Tidbits for the Security Industry

World-Wide Web

Well, it seems everyone's getting into the World-Wide Web act these days. Following are a few companies of locksmith products and services that have recently joined this new wave of communication.

Interactive Technologies, Inc. (ITI)
<http://www.securitypro.com>

Schlage Lock Company
<http://www.schlage.com/schlage>

Master Lock Company
<http://www.masterlock.com>

Darex
<http://darex.com/sharpeners>

Of course manufacturer help is still available the good old fashion way - by phone. S&G now has an 800 help line for anyone needing help with their 6120 and 6121 electronic locks. Using a touch tone phone, locksmiths/safemen can dial (800)826-7652 x500 to access Sargent & Greenleaf's Electronic Lock Help Line.

Framon offers the following information on the new 1996 Ford 8-Cut system:

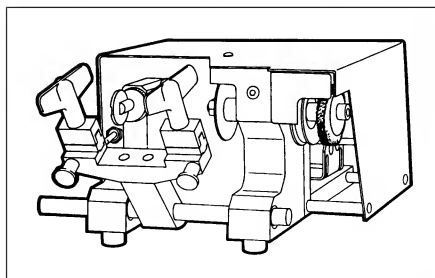


Illustration 1

Code Series: 0001X-1706X

Starting Cut (For #2 Code Machine Users): .405"



by
Tom Seroogy

Spacing: .0921"

Spacing Block #3

Depths: 1-.354", 2-.329", 3-.304", 4-.279", 5-.254"

Alignment: Lay spacing clip flat against left side of vise and slide key in from the right. The tip of the key and left side of vise should be aligned.

Framon Manufacturing Company has also redesigned their DBM-1 Flat Steel Key Duplicator. (See illustration 1.)

The functionality of the machine has stayed the same, although the machine has taken on a very different look. Now included with the machine is a wire deburring brush and a .045" carbide slotter. The guide on the DBM-1 can rotate to accommodate a variety of optional thickness cutters. A 1/12 hp, 110V motor is standard on the DBM-1, and a 1/10 hp 12V motor is available at no additional charge. The DBM-1 makes quick and easy work out of duplicating safe deposit box, locker and corrugated padlock keys. As with all Framon machines, the DBM-1 carries a one year, parts, labor & freight warranty. For more information, contact your distributor or Framon Manufacturing Company at (517) 354-5623. Framon's address is 909 Washington Ave., Alpena, MI, 49707.

All-Lock has just release that they are modifying their part numbering system. While the part numbers will remain the same as we've always seen them, they will now be preceded by two letters, designating the product line.

For instance, the 1428 ignition lock is now prefixed with the letters "LC" to yield the new part number LC1428. There is a rhyme and reason to the All-Lock numbering system. While All-Lock manufacturers hundreds of products, following are the letter designations for the important locksmith market oriented items from All-Lock:

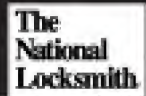
Prefix Product

CL	Camlocks
DL	Door Locks
GL	Glove Box Locks, Storage Compartment Locks
IM	Instruction Manuals
KB	Key Blanks
LC	Ignition Lock Cylinders
LS	Lock Sets (Ign/Dr, Trk/Dr, Glvbx/Trnk, Muscle Cars)
LT	Lock Tools
PL	Plug Locks
RP	Replacement Parts (Springs, Tumblers, Pins, Clips, etc.)
SK	Service Kits
TL	Trunk Locks

In addition to the prefixes, suffixes will also follow the number. Most All-Lock customers will use the following suffix - 3AL. The 3 indicates Poly Bag Packaging and AL indicates that it is under the All-Lock label.

Hey, this is no rumor - Curtis Industries is introducing a computerized code cutter shortly into 1996. The unit, a prototype of which was demonstrated at a Greater Chicago Locksmith Association meeting, allows the locksmith to cut by code, trace or use depth keys for both auto and home keys. This machine will not be sold to hardware stores. See our review coming up in the near future.

Make sure and take note that Pro-Lok has moved. Their new address is 655 North Hariton St., Orange, CA 92668-1311. Their phone numbers remain the same: (714) 633-0681, fax (714) 633-0470. And don't forget to check out their new Mazda Lock Servicing Encyclopedia. It's filled with everything you need to service the Mazda line vehicle. **TLN**



The Great Schwab Adventure part 2



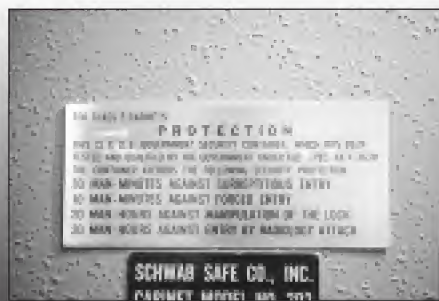
by
Jake Jakubowski

Hay, everyone! Glad you came back for the second half of this adventure! Before I get started, I want

everyone to know that I ran my buddy, Murphy, away from here. That means this part of our "Great Schwab Adventure" is going to go a lot smoother! Especially since Tom Gallian, and I finally get a hole in this container that will do us some good!

Anyway, Tom and I met at the Post Office the next morning at 6, and didn't waste any time getting down to the nitty-gritty of this opening. With the experience we had picked up drilling this Schwab container the day before, we were ready!

After a couple of false starts, Jake hits the jackpot on opening the Schwab GSA Class 5 safe.



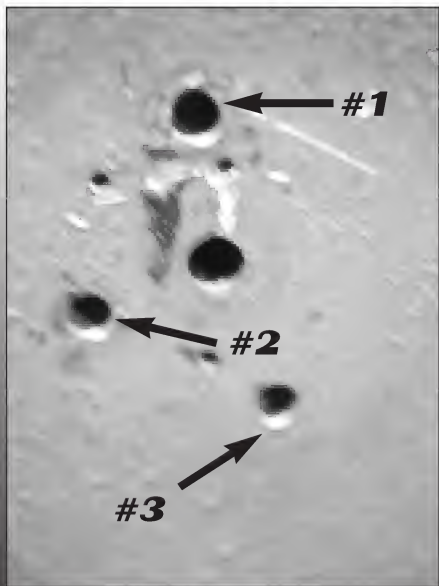
2. GSA Class 5 Container found inside the door.

minutes ... even if you knew which way the lock was mounted! In fact, that lock was protected on all six sides, but more on that later.

When we inserted the scope, we were just a tad below where we wanted to be, but had an excellent view of the lever, fence and gates. Tom dialed the combination, lined the gates up, turned the spline tab and nothing happened! Then, using a small diameter probe, he reached in the hole and lifted the lever into the gates!

The lockout had been caused by a broken lever spring. It was that easy. Sigh! If we had only known that the lock was mounted left handed to begin with.

Once the lock bolt was retracted, Tom just turned the handle, and pulled the door open. Besides the label found on the door, this is what we found: (see photograph 3)

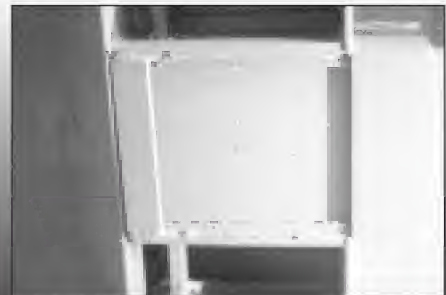


1. The arrows point to the holes we drilled in in what order they were drilled. Each hole took about 3 hours to complete.

The third and final hole was drilled in the quickest time of all. (See photograph 1.) We had that one through the door in about an hour and a half! Not bad considering what we had gone through the day before. Just to put our cost of this opening in perspective for you, we used six or seven cobalt bits, seven Strong Arm bits and four Diamatip bits.

Up to this point, we had nearly 21 man hours in the opening of this Schwab, Class 5, GSA container. Anyway you look at it, that's adventuresome ... and then some.

The GSA label on the inside of the door says that this unit, has a rating of 10-man minutes against forced entry. (See photograph 2.) That might apply to the sides, the top or the bottom of this unit, but - and you can take this to the bank - there's just no way your going' to get into that lock case in 10



3. The hardplate that protects the lock and handle cam areas.



Photograph three shows the heavy-duty hardplate that guards the back of the lock case and the handle cam area of the safe. If you were to try to cut a hole in the side or back of the safe in an attempt to attack the lock, this hardplate would stop you cold! The only way this plate can be removed is to remove two screws and a cover plate on the locking edge of the door. If the door is closed, you can't get to the screws. Once the cover plate is moved, the hard plate can be pulled out. (See photograph 4.)

Photograph five details the handle, cam and actuator rods on the inside of the door after the hardplate shield had been pulled to the side.

Photograph six is an excellent view of the actuator that operate the cam arrangement that throws the bolts. There are eight active bolts on this door. Four of them slide into receivers on the handle side of the safe and four slide into receivers on the hinge side. Because of the way these bolts and cams interact with one another when the handle is thrown,

you can forget about trying to side drill and punch the bolts back.

If you tried to punch any one of the four bolts from the side, you can readily see how you would only succeed in jamming the entire mechanism since only the one bolt would move ... and that movement would most likely cause the whole mechanism to jam. With the bolts being coupled in pairs on each side (two at the top, two at the bottom) a side punch attack makes no sense at all.



4. Removing the hardplate.

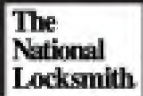


5. Handle cam and actuator rods.

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6. The bolts and boltwork cam.



7. The hole used for the successful entry.

At any rate, it is this complex arrangement of cams and actuators that allowed the lock to be mounted in a Left-Hand configuration. In a little bit, I'm going to show you the stop-block that is mounted to the 8400's lock bolt. It's massive enough to stop a side punching attack all by itself!

Photograph seven shows the hole that finally gave us access to the lever and fence. As I said, the hole was a



8. The 8400 with cover removed. Holes are numbered by drilling sequence.

little low but it gave us the view we wanted and allowed us to open the safe. Just below the hole, you can see a lot of debris from drilling. The aluminum block it is laying on is part of the protection around the lock. There is another piece of hardplate that just sits under the aluminum block to keep someone from easily drilling the lock from the bottom.

Photograph eight, is the 8400 with the back cover removed. Arrow one points to the first hole we drilled. That hole was just where it should have been to view the lever if the lock had been mounted right hand. Hole number two is likewise ideally located for an excellent view had the lock been mounted VD. Arrow three points out the hole that allowed us to access the lever and lift it up into the gates.



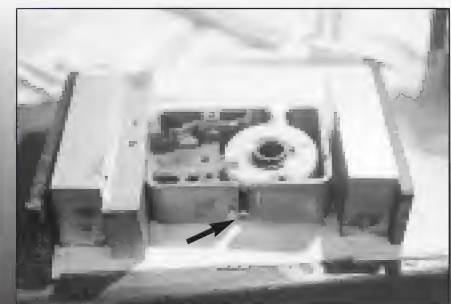
9. Mountin place for the lock and its surrounding hardplate.

Photograph nine, is of the "nest" where the 8400 and its "bodyguards" set. To the extreme right of the nest, you can see another piece of "loose" hardplate. By allowing the hardplate to "float" like this, Schwab has purposely made it more difficult to drill if you were attacking the lock

from the top, sides or bottom. Drilling this would be kinda' like trying to thread a needle while riding the Tilt-A-Whirl at the county fair.

Also in photograph nine, you can see two holes on a level with each other. Those holes are the bottom mounting holes for the lock case. You can't see the spindle hole because it's in the shadow at the top of the photograph. The aluminum blocks and hardplate blocks account for the rest of the space.

Photograph 10 shows how the "floats" of aluminum and hardplate



10. The floating obstructions.

surround the lock case. Take special note of the really heavy-duty stop block on the end of the lock bolt. You can see with all the protection around the lock that trying to drill and end-punch the lock bolt isn't even worth thinkin' about. Photograph 10 also gives an excellent view of the hole just under and slightly to the left of the wheel pack - that let us in this container.

Photograph 11 shows how the lock bolt and the stop block are held together with cap screws. The entire locking arrangement of this Schwab, Class 5 container was, in my opinion, well thought out, engineered and put together. It's surprising how easily and smoothly everything meshed and worked together. No glitches or gotchas. Just good smooth operation. That's an indication of superior workmanship and excellent quality control. And, as far as I'm concerned that's Schwab.

Photograph 12 is of the holes that are not there any more. They were stuffed with ball-bearings and welded closed. I sure hope I'm not the next guy that has to drill this container.



11. The lock bolt and stop block held together by cap screws.

The repaired area was painted and the new lock, dial ring and dial installed. (See photograph 13.) Shoot! Looks good enough for goverment work.

In all honesty, there was a certain amount of "gropin" at the beginning of this adventure, but that was due mainly to a lack of information on our part. Everyone can bet the farm that if I ever see another GSA container with that distinctive diamond shaped handle, my first hole is going to be drilled for a LH mounted lock. Especially when there is so much distance between the handle center and dial center. If any of you come up on one of these very tough Schwab GSA containers, I hope you read this article first and that you own Great Schwab Adventure is a little less adventuresome!

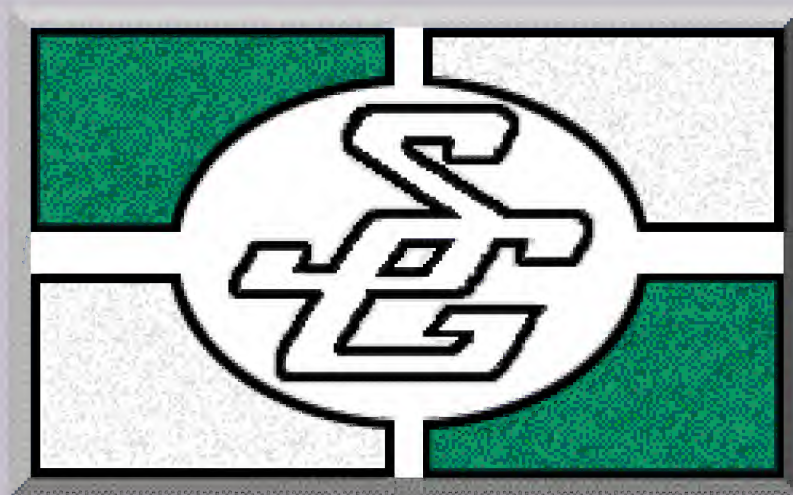
I want to tell you a little about with those fine folks at Schwab. First off, they're just great about helping you field-service their products. If you run up on a Schwab-made file cabinet, safe, MediaCooler or Media Cabinet that you need help with, all you need to do is call them at (800) 428-7678. They have a dandy technical support department.

If you need a part to field service one of their products, most of those parts will be shipped at no charge,

since just about everything Schwab sells they have a lifetime guarantee on. No foolin'! There are some limits to that practice, so check with them before you tell your customer there'll



12. Once the repair was made, these holes were patched. . .



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be no charge for the parts! Especially if to service a Schwab horse-drawn carriage or Schwab made sewer grate!

One exception to that guarantee on parts and technical support availability would be with reference to GSA containers. According to the information given to me by Schwab in that regard, most of Schwab's government contracts followed a simple "bid, build and ship order." The technical specifications for the requested material were provided to Schwab by the GSA. Consequently, even when Schwab was awarded a contract, product literature was not developed since the specific bid items would not be sold outside of the contract.

Another thing I want to tell you about Schwab. They will be happy to send you product literature, wholesale and retail price lists and show you how they can help you sell their products to your customers. You don't need to tie up money in inventory neither. If you sell something, Schwab



13. and the dial and dial ring replaced.

will drop ship it. They even have a program where they'll deliver the product to a specific office for a slight upcharge.

If you want to sell one of your customers a Schwab container, there are two major benefits you'll likely want to point out to a prospective buyer. The first is: Schwab's Lifetime Product Warranty that I mentioned earlier. If a mechanical or operable part malfunctions or breaks during normal

use: Schwab will, at their option, replace it free as long as the original purchaser owns the product.

The second benefit is Schwab's Lifetime Replacement of Product and Covered Contents. This basically says that if a safe or cabinet is damaged beyond repair, it is covered under Schwab's Lifetime Replacement Guarantee. And Schwab gives the purchaser a \$100,000.00 Replacement of Contents Guarantee in the event the contents in a Schwab container are destroyed as a result of a fire. For specific details contact Schwab.

So, why don't you give them a call and see how you can start your own Great Schwab Adventure! Tell 'em ... "Jake sent me!"

See everyone next month...

TR



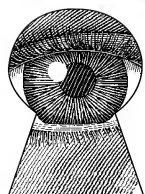
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THRU THE KEYHOLE



A Peek at Movers & Shakers in the Industry

ATTENTION MANUFACTURERS AND DISTRIBUTORS: Would you like your company and products to be profiled in *Thru The Keyhole*? Please call Managing Editor, Tom Seroogy at (708) 837-2044.

Securitron's DK-25 (DK-26) Stops Speeding Bullets

Digital keypads used for access represent quite a design challenge. An access keypad receives a high volume of use compared to an alarm system keypad. In many cases it must be mounted outdoors in the heat, cold, and rain. We've also learned over the years that Americans have a broadminded view of what constitutes a finger. Keypads are pushed with pens, car keys, even pocket knives. Access keypads live in a tough world.

For a number of years, our best answer to this problem was the DK-20. It was fully waterproof, included LED's and a beeper, could be easily mounted on any kind of surface and its long and narrow shape fit perfectly on narrow door frames. We built it using no-moving-parts membrane switch technology under a polycarbonate top-coat. Membrane switch technology is extremely common today in both industrial and consumer products. These switches accept very heavy use without complaint, so long as the keys are pressed only with a finger.

Once people start using car keys and the like, the switches can be damaged in two ways. First, the plastic top coat over the switches can be ripped away by the use of sharp objects. The DK-20 had excellent defenses against this because we used a thick Polycarbonate (also called Lexan) barrier. Membrane switches on consumer products such as copiers or home appliances are usually mounted under thin mylar. It only

takes a little abuse to wreck these switches.

The second problem was more subtle. Use of car keys for entry didn't have to break the top coat to damage the underlying switch. Merely the sharpness of the device used to press the key could, in time, cause failure of the switch. This was a big problem. How could we convince keypad users to "let their fingers do the pressing?" We couldn't. Not all of them. We don't understand why, but some percentage of users believe the correct way to enter an access code is with that ice-pick they keep handy.

So we saw the need for a new keypad which would not only stand up in normal use but which would be highly resistant to abuse. We began to say, "we need a bulletproof keypad." That was our goal.

The result of that design effort is now called the DK-25 (now called the DK-26) keypad. It's much tougher than the DK-20. First, the DK-20 was made from an aluminum extrusion while the DK-25 is made from a 2mm thick stainless steel casting. This is very thick and makes the DK-25 much more resistant to general bashing around which can be expected to come from our high spirited public. We upgraded the membrane switches themselves to military standard and then mounted them under a special type and shape of rubber. The tops of this rubber piece protrude through holes in the casting and create buttons.

When you push on one of these rubber buttons, you've got 1/4" of rubber between you and the switch. A sharp object feels the same as a finger to the switch, once the pressure has

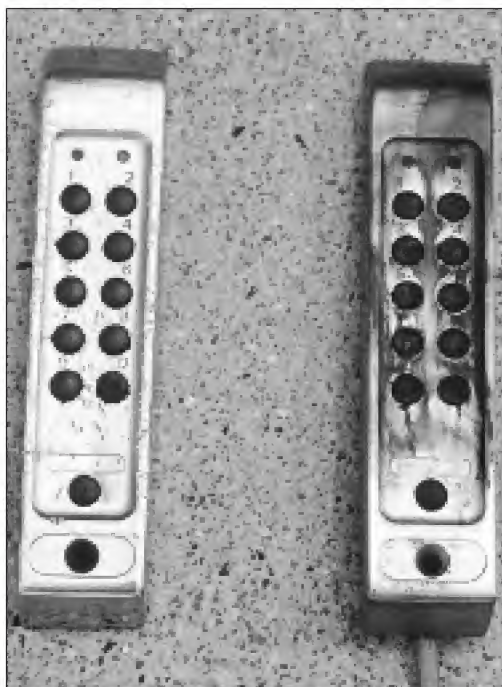
passed through the rubber. The rubber is also a special type (devised in our secret laboratory). It's deliberately flexible so it feels good to the finger but if a sharp object pushes down on the rubber, an impression will not be left. The rubber has an uncanny ability to fill in the depression and return to a smooth surface. It also laughs off heat, cold and degradation from sunlight.

So how tough is the DK-25? Can we really call it bulletproof? To find out, we equipped John Marmolejo, our normal product torture tester, with a screwdriver and blow-torch. (See photograph 1.) Close-up photos show the results of each test. (See photograph 2.) The screwdriver test was just a frenzied attack all over the unit (remember the movie, "Friday the 13th"?). Notice how the stainless steel is heavily gouged but the rubber looks pristine. The unit still works. As I said, this is special rubber.



1. Securitron torture administrator John Marmolejo prepares with screwdriver and torch.

The blow-torch test was conducted until the stainless was glowing a dull red. We managed to burn off the portions of the rubber that stick out from the case. But once the unit cooled down, (no one wanted to touch it while it was glowing), it still worked.



2. Keypads after the administered torch and screwdriver.

As the product began to ship, field results confirmed that the DK-25 stood up to abuse far better than its predecessors. But is it really bulletproof or is this just an empty slogan?

Well, Bob Cook, our company President, has the highest salary which means (in Nevada) that he has the nicest gun collection. So, off he went to the Washoe County outdoor shooting facility to blaze away at the keypad. (See photograph 3.) The range is run by members of the county Sheriff's department and Bob solemnly explained the serious product testing that he was about to perform and the implications for Nevada's economy if Securitron could advertise the DK-25 as truly bulletproof.

Bob, a former US Army officer, is certainly familiar with sidearms. He

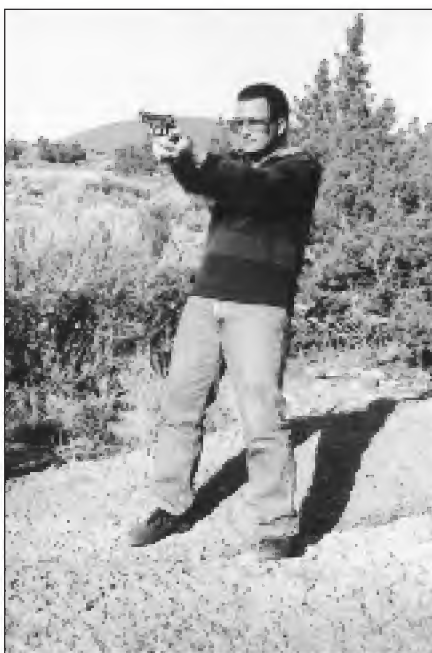


3. The final test was held on the Washoe County (Nevada) Regional Shooting Facility.

selected a semi-automatic Smith & Wesson 9MM pistol, set up about 40' from the keypad, confidently settled into the classic two handed shooter's position and proceeded to miss the keypad with all 15 rounds in the clip. Wiping away tears of laughter, the assembled Sheriffs said they had no problem publicly certifying the DK-25 as bulletproof so long as Bob was doing the shooting. (See photograph 4.)

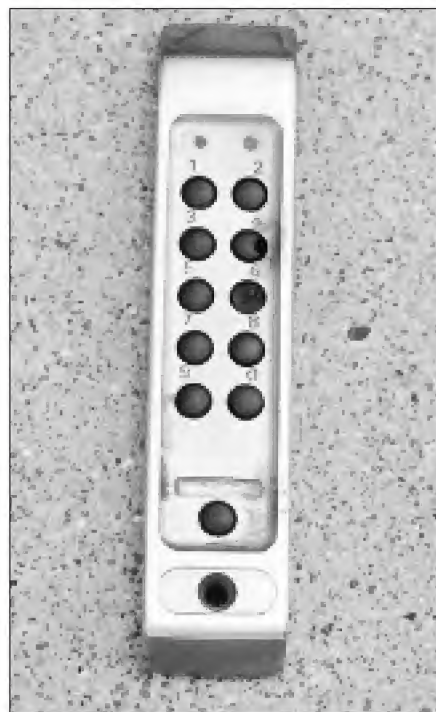
Bob pointed out that it was very windy but did move up to about 20' away. From this distance, he scored a hit. The group moved forward to examine the keypad. You could see that the bullet had struck with enough force to bend the case but the unit still worked.

Back to 20' away. Bob got another hit. Same result, the unit still worked. Getting greedy, Bob resumed until he got a third hit. This round, unfortunately,



4. Bob Cook, Securitron president, unloads 15 rounds at the DK-25 keypad.

smacked right into the center of one of the rubber keys. With no 2MM stainless steel to stop it, the bullet hit the rubber so hard that the rear of the keypad, which is held together with potting resin, just blew out. Surprisingly the rubber key is still there but the internal keypad electronic parts are scattered all over the range. (See photograph 5.)



5. It took three shots at 20' to finally disable the DK-25. And, then, only after a direct hit on one of the buttons.

You could say the keypad suffered an industrial exit wound.

So we concluded that Securitron's DK-25 is weatherproof, car key-proof and bulletproof - two out of three times from 20'.

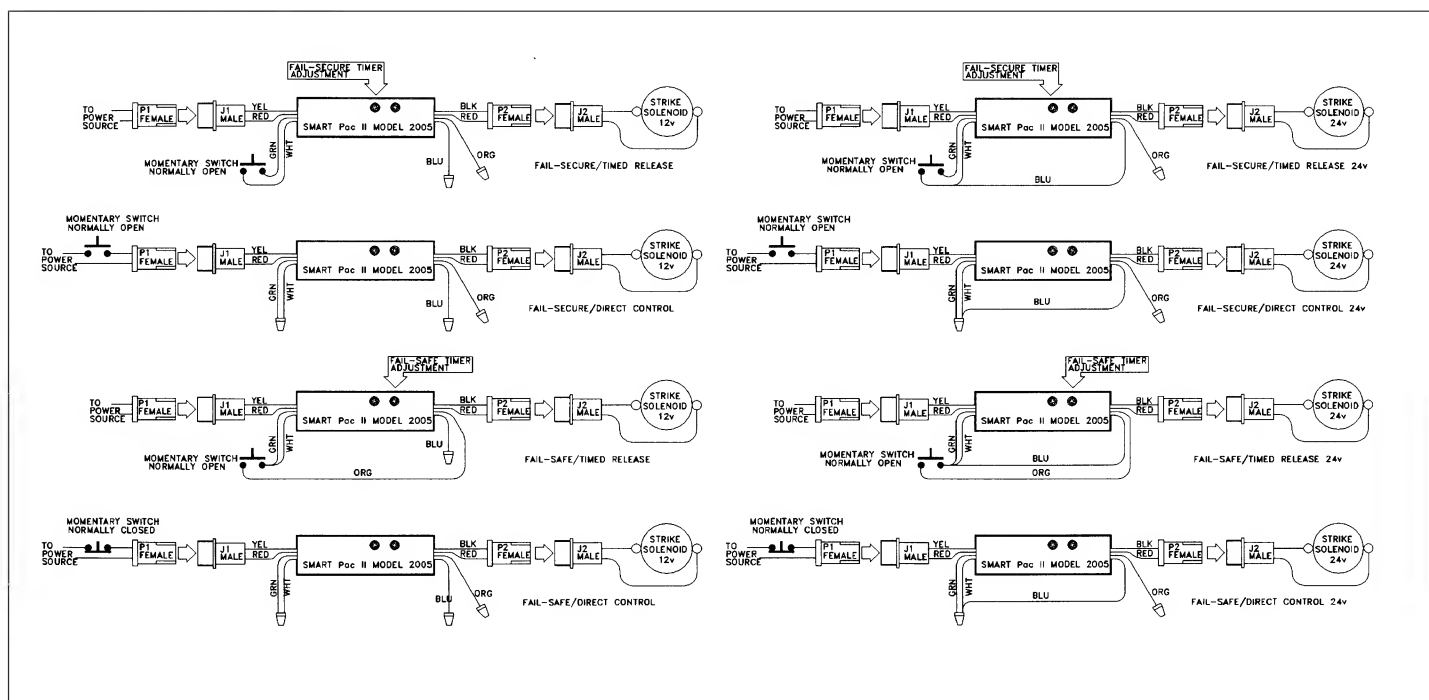
Written by Vincent J. Frallicciardi,
Vice President - Marketing, Securitron
Magnalock Corporation

Introducing the H.E.S. Smart Pac

About two years ago, on a beautiful day in Arizona, a customer service call was mis-routed to the accounting department. On the other end of the line was a befuddled locksmith trying to understand the difference between alternating and direct current and how he could possibly tell if his transformer was putting out 12 or 24 volts. On this end, our accountant, although a very bright individual, was trying to understand what either question had to do with profit or loss and, ultimately, the "bottom line."

Eventually they managed to get the technical question resolved but as soon as he put down the phone, our financial genius demonstrated the breadth of his wisdom. He simply posed the following question to our engineering whiz: "Can't you do

Continued from page 112



1. The Smart Pac can be configured to fit any 12 or 24 volt application imaginable.

something clever so that electric strike installers don't have to have a four year degree in electronics to understand how to power a strike."

A day or so of "clever" thinking was all the engineer needed, and what he came up with surprised both the accountant and the marketing department. "Why not create a small electronic package that not only guaranteed the correct voltage for a strike but also offered the installer timing, circuit protection, and power regulation"? he asked. The marketing department not only thought that idea to be "clever" but actually "SMART." With that, the H.E.S. Smart Pac was born!

Our engineering whiz earned his keep that month by designing a tiny package that could be plugged in line with the H.E.S. modular system. The list of its capabilities was way too long for inclusion on the small package but just so you know what it's capable of we're going to list them here.

- Powers a 12 volt strike safely with any input from 12 to 40 volts DC or 12 to 28 volts AC.

- Powers a 24 volt strike safely with any input from 24 to 40 volts DC or 24 to 28 volts AC.

- Provides minimum on time of 2 to 8 seconds (adjustable) for a fail secure strike.

- Provides minimum off time of 2 to 8 seconds (adjustable) for a fail safe strike.

- Drops the holding voltage from 12 to 9 volts or 24 to 18 volts after a fixed interval for a strike operated continuously. This virtually eliminates heating of the strike.

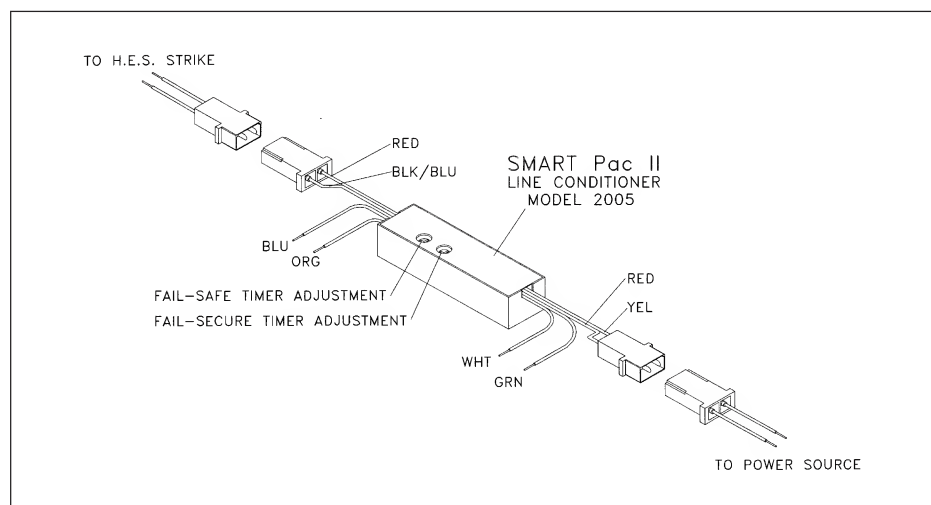
- Protects the controlling circuitry (card reader, key pad etc.) from any voltage surges produced by the strike.

- Protects the strike in the event of a component failure in the Smart Pac by opening up a fusible link. (See illustration 1.)

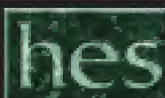
Amazingly, it does all of the above without generating any noticeable heat in itself! In fact it's so smart we've applied for a patent on the design.

How does this help the installer? It allows him to concentrate on the mechanical aspects of the strike installation knowing that the electrical problems have already been solved. You might say it's "locksmith friendly."

To install the unit on any H.E.S. strike you simply unplug the pigtail connector from the strike wires and plug the Smart Pac in between. If you are using the timing functions, you attach your switch wires to the non-

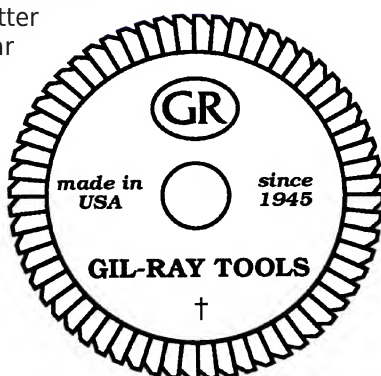


2. The Smart Pac.



Key Machine Cutter Catalog By Gil-Ray Tools®

Gil-Ray Tools Inc. manufactures a full line of replacement cutter wheels for all popular machines. They sell direct to locksmiths through their cutter catalog. Cutters are in stock for immediate delivery for all code machines and most duplicating machines, including imported machines. Gil-Ray cutters feature precision ground teeth and are made from premium High Speed Steel and Solid Carbide. Their new catalog also features quality key machines from well know manufacturers.



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Our 49th year

For a new cutter catalog, or for sharpening information, write: Gil-Ray Tools at 1306 McGraw St. P.O. Box 801, Bay City, MI 48707, or phone (517) 892-6870. Free.



CATALOGS

Dorma 640/650 Series Closer

New, four-page, four-color literature from The DORMA Group describes its expanded 640/ 650 Series line of surface closers. The publication gives applications, technical and ordering information on the 640/ 650 Series which has been expanded to add sized, non-adjustable closers in sizes 2, 3, 4, 5, and 6 to the current size adjust-able line.



For additional product information, contact : DORMA Door Controls Inc., Dorma Drive, Drawer AC, Reamstown, PA 17567-0411. Phone: (800) 523-8483; Fax: (800) 274-9724. Free.!!

New H.E.S. Product Catalog And Wall Poster

Hanchett Entry Systems, Inc., introduces a new full line product catalog, designed to provide a quick reference between the H.E.S. electric strikes and the different types of locks found in the industry. This informative catalog format is ideal for the locksmith or security professional wishing to step into the "Access Control" field.

Also available is an attractive full size wall poster, designed like a flat quick reference catalog. This poster displays the relationships between the various locks on the market and the different electric strike models offered by H.E.S. For a copy of the catalog or wall poster write to: H.E.S., Inc.,



21622 N 7th Ave., Phoenix, AZ 85027. To request a copy by fax dial (602) 582-4641. Free.

Locknetics CM5000 Brochure

Locknetics Security Engineering introduces its full-color, eight-page product brochure featuring the new, CM 5000 Computer-M anaged, stand-alone, electromechanical locking system.

The brochure describes the ease with which CM 5000 systems are installed, whether for new construction or retrofit. It also details the



Continued from page 116



breadth of programming flexibility for CM 5000, including direct keypad programming for keypad systems; an entry level, cost-effective programmer emulating a keypad; preprogramming for up to seven data keys with built-in buttons on the controller; and DOS-based portable computer programming for off-line and local programming. Full ordering information, including functional, technical and architectural specifications, are also included. For further information, contact: Locknetics Security Engineering, 575 Birch Street, Forestville, CT 06010, phone (203) 584-9158, fax (203) 584-2136. Free.

Tanner Bolt & Nut Corporation 1995 Locksmithing Solutions Catalog



Tanner Bolt & Nut Corp. has just published its new, 1995 Locksmithing Solutions Catalog.

The latest in a series of special application catalogs, it features the fasteners and tools favored by our locksmith customers over the past 16 years.

In one concise source, this 16 page catalog, combines a unique blend of standard and specialty items all designed to make a wide variety of lock and hardware installations easier and more efficient.

Tanner Bolt & Nut's product line includes standard, self-drilling and tamper-resistant fasteners, a comprehensive line of anchors, security and drill bits, cutting tools, and a complete line of power tools.

Tanner Bolt & Nut Corporation, 783 East 42nd Street, Brooklyn, NY 11210, Phone: (718) 434-4500, fax (718) 434-3215. Free.

MBA Specialty Tools Catalog #2

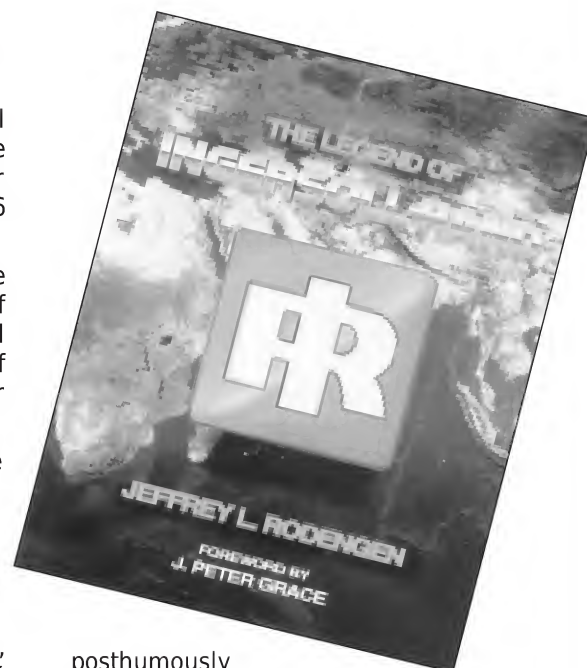
mark bates ASSOCIATES/MBA Specialty Tools, is pleased to announce the publication of their latest catalog of tools for lock specialists. Catalog No. 2 features lock picks, bypass tools, safe and lock servicing tools, optical equipment and technical manuals. Call (800) 555-4471, (606) 858-0811, fax (606) 858-4292 or write for the new catalog to: MBA Specialty Tools, 2140 Megee Lane, Nicholasville, KY 40356-9525. Free.

King Alarm Full Line Catalog

The new, 140-page, KingAlarm '95/'96 Products Catalog contains listings for over 12,000 products from 237 leading manufacturers. Along with security products, the catalog includes the vast range of systems equipment KingAlarm carries: Fire alarm, CCTV, communications/intercom, sound systems, access control, telephone, central vacuum and CATV. Call KingAlarm at (800) 526-0162 or (800) 828-5464 (inside NJ) and request a copy. Free.

The Legend Of Ingersoll-Rand

The Legend of Ingersoll-Rand, 224 pages, is lavishly illustrated with hundreds of photographs and illustrations from 125 years of Ingersoll-Rand history, with a

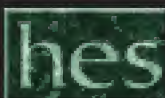


posthumously published introduction from J. Peter Grace (former CEO, W.R. Grace and former director, Ingersoll-Rand.) It is available at fine bookstores everywhere or directly from: Write Stuff Syndicate, Inc., 1515 Southeast 4th Avenue, Fort Lauderdale, FL 33316, or call (800) 900-BOOK (2665). \$39.95 plus \$4.50 shipping.

Direct Safety Company Catalog

Direct Safety Company, a major supplier of safety items to industry, announced the issuance of its 1996 master catalog. Designated as "the easy-to-use guide to safety products," this 196-page full-color book now features extra large product photographs and copy that makes it easier than ever for customers to understand which





products best meet their needs. For further information contact: Direct Safety Co., 7815 S. 46th St., Phoenix, AZ 85044. Phone: (800) 528-7405. Fax (800) 760-2975. Free.

Instant Teaching Skills By Professional Training Resources.

Having to deliver information to adult learners, with only a limited knowledge of classroom teaching techniques, is a situation too many professionals find themselves in.


If you are in that position, or faced with the task of placing other people in that position, then you must order a new publication just released by Clarice Cox, entitled "Instant Teaching Skills." This practical manual takes the reader through the entire teaching process, from preparing for the first session through the evaluation process, and even includes sample syllabus and evaluation examples in the appendix.

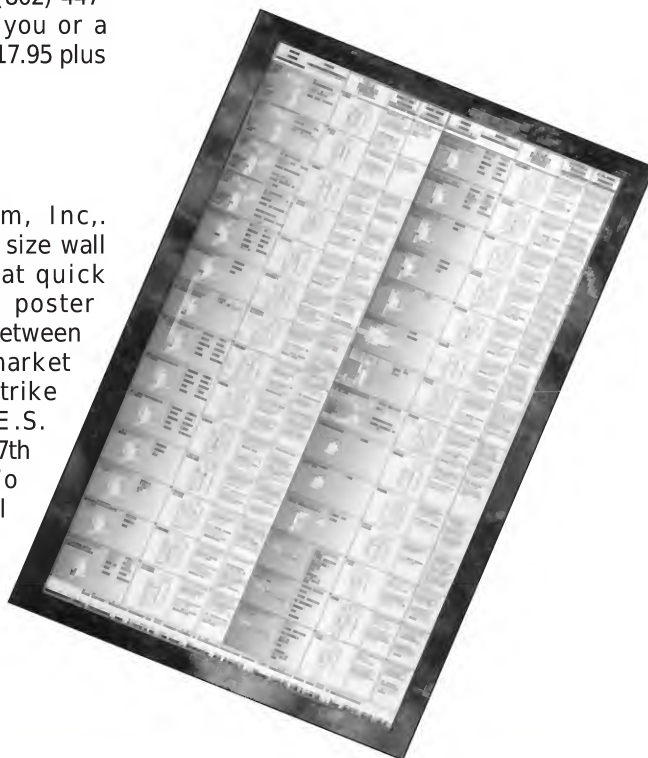
Simply written and full of common sense tips, this manual can help anyone from the newest, most

inexperienced instructor to the most seasoned trainer.

To order a copy of "Instant Teaching Skills", contact: Professional Training Resources, P.O. Box 439, Shaftsbury, VT 05262 or call (802) 447-7832 and order a copy for you or a member of your staff. Cost \$17.95 plus \$2.50 S&H.

H.E.S. Flat Wall Catalog

Hanchett Entry System, Inc., introduces an attractive full size wall poster, designed like a flat quick reference catalog. This poster displays the relationships between the various locks on the market and the different electric strike models offered by H.E.S. Write to H.E.S., Inc. 21622 N 7th Ave., Phoenix, AZ 85027. To request a copy by fax dial (602) 582-4641 Free. 



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KEY CODES

Metal Rousseau E0001-E2000

HPC 1200

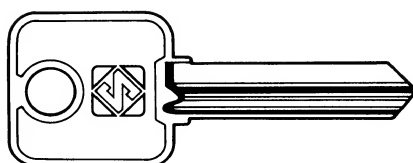
Code Card - Not Available
Cutter - CW1011
Stop - Shoulder

Framon

Cut Start - .348"
Cutter - FC8445
Cut to cut - .156"
Spacing Block #1
Stop - Shoulder

Key Blanks

Silca - MTR1
Ilco - MR1

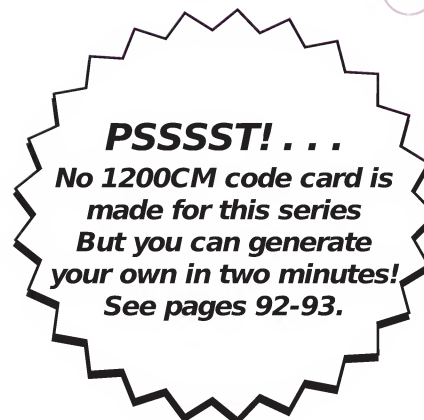


Spacing

1 - .348"
2 - .504"
3 - .660"
4 - .816"
5 - .972"

Depths

1 - .195"
2 - .210"
3 - .225"
4 - .240"
5 - .255"
6 - .270"



E0001	15523	E0029	51163	E0057	26152	E0085	23225	E0113	61126	E0141	65144
E0002	12556	E0030	25526	E0058	63513	E0086	46641	E0114	63342	E0142	21545
E0003	56614	E0031	33112	E0059	61621	E0087	34634	E0115	26613	E0143	51661
E0004	36413	E0032	16553	E0060	61434	E0088	63245	E0116	65516	E0144	43634
E0005	16211	E0033	22626	E0061	41535	E0089	46661	E0117	62242	E0145	16465
E0006	42125	E0034	55212	E0062	32421	E0090	52466	E0118	21453	E0146	55331
E0007	14516	E0035	46263	E0063	56134	E0091	54152	E0119	31526	E0147	54464
E0008	41211	E0036	65136	E0064	15335	E0092	26643	E0120	54212	E0148	25165
E0009	61414	E0037	64542	E0065	61421	E0093	52366	E0121	66353	E0149	53431
E0010	63242	E0038	22643	E0066	11234	E0094	33542	E0122	61526	E0150	32564
E0011	35613	E0039	63266	E0067	23435	E0095	43523	E0123	31112	E0151	53134
E0012	32616	E0040	12642	E0068	13251	E0096	11536	E0124	45453	E0152	16431
E0013	16242	E0041	34345	E0069	11644	E0097	41262	E0125	53236	E0153	55552
E0014	63123	E0042	54661	E0070	23135	E0098	22323	E0126	15112	E0154	65336
E0015	55516	E0043	16144	E0071	12251	E0099	32636	E0127	34653	E0155	65234
E0016	23342	E0044	65345	E0072	35544	E0100	22162	E0128	25136	E0156	51423
E0017	16613	E0045	16531	E0073	45325	E0101	54521	E0129	56112	E0157	13136
E0018	44516	E0046	14464	E0074	13541	E0102	36356	E0130	34553	E0158	24231
E0019	36412	E0047	15365	E0075	65544	E0103	14145	E0131	44336	E0159	21335
E0020	52163	E0048	24431	E0076	55135	E0104	15463	E0132	32112	E0160	45421
E0021	43526	E0049	16564	E0077	24151	E0105	53521	E0133	14163	E0161	61234
E0022	63212	E0050	63265	E0078	13354	E0106	12435	E0134	61136	E0162	35335
E0023	61453	E0051	51413	E0079	35135	E0107	31356	E0135	14412	E0163	22421
E0024	52236	E0052	43124	E0080	33641	E0108	34663	E0136	12653	E0164	36134
E0025	56312	E0053	14511	E0081	15644	E0109	54613	E0137	36566	E0165	31335
E0026	33163	E0054	52616	E0082	53625	E0110	63226	E0138	45642	E0166	55421
E0027	46626	E0055	55313	E0083	35641	E0111	12242	E0139	56643	E0167	22134
E0028	45112	E0056	41462	E0084	34254	E0112	53323	E0140	56561	E0168	61525



Metal Rousseau

E0001-E2000

E0169	66541	E0220	12554	E0271	61361	E0322	33416	E0373	36414	E0424	43134
E0170	46544	E0221	63456	E0272	46164	E0323	62432	E0374	54665	E0425	56335
E0171	45525	E0222	14432	E0273	24665	E0324	11663	E0375	22341	E0426	36241
E0172	14541	E0223	12513	E0274	65341	E0325	62456	E0376	65314	E0427	66434
E0173	15544	E0224	36216	E0275	54214	E0326	21632	E0377	32415	E0428	62335
E0174	62235	E0225	63232	E0276	53515	E0327	62563	E0378	36341	E0429	45241
E0175	54151	E0226	12563	E0277	34441	E0328	25356	E0379	52314	E0430	12434
E0176	13254	E0227	13356	E0278	43314	E0329	24232	E0380	36615	E0431	11435
E0177	63625	E0228	46432	E0279	63125	E0330	23363	E0381	31341	E0432	55341
E0178	65151	E0229	25663	E0280	22241	E0331	35456	E0382	53214	E0433	42434
E0179	26154	E0230	45556	E0281	42514	E0332	13232	E0383	51615	E0434	42435
E0180	41525	E0231	25332	E0282	45415	E0333	46363	E0384	25141	E0435	65221
E0181	62641	E0232	41663	E0283	31241	E0334	61356	E0385	11414	E0436	46434
E0182	26544	E0233	53456	E0284	13514	E0335	22632	E0386	36415	E0437	12635
E0183	65525	E0234	12432	E0285	62515	E0336	41563	E0387	11441	E0438	25121
E0184	53251	E0235	45463	E0286	53441	E0337	65556	E0388	55214	E0439	31234
E0185	21254	E0236	46556	E0287	35214	E0338	43232	E0389	22515	E0440	36535
E0186	65625	E0237	66432	E0288	64125	E0339	55563	E0390	51341	E0441	35121
E0187	63661	E0238	12463	E0289	33241	E0340	46456	E0391	46514	E0442	11634
E0188	46444	E0239	26456	E0290	24614	E0341	11122	E0392	43125	E0443	62635
E0189	63645	E0240	16432	E0291	16515	E0342	44463	E0393	15241	E0444	25221
E0190	13543	E0241	16563	E0292	13141	E0343	64456	E0394	22514	E0445	56234
E0191	41466	E0242	15656	E0293	51614	E0344	24612	E0395	53615	E0446	16635
E0192	35252	E0243	34122	E0294	66125	E0345	15563	E0396	11341	E0447	56611
E0193	31643	E0244	31463	E0295	61441	E0346	66356	E0397	34414	E0448	15234
E0194	65566	E0245	42356	E0296	63414	E0347	31612	E0398	33535	E0449	21635
E0195	16652	E0246	36122	E0297	44615	E0348	46563	E0399	54341	E0450	54121
E0196	15223	E0247	22363	E0298	62341	E0349	43356	E0400	21614	E0451	44122
E0197	45536	E0248	12356	E0299	11514	E0350	52122	E0401	12456	E0452	45514
E0198	11552	E0249	11612	E0300	12125	E0351	26662	E0402	43122	E0453	15315
E0199	65123	E0250	33463	E0301	65355	E0352	62133	E0403	21363	E0454	52141
E0200	44146	E0251	31623	E0302	64511	E0353	65446	E0404	65356	E0455	54514
E0201	45411	E0252	42446	E0303	36124	E0354	32662	E0405	25322	E0456	11615
E0202	41324	E0253	31562	E0304	32255	E0355	24623	E0406	61463	E0457	42441
E0203	15355	E0254	55133	E0305	64411	E0356	63446	E0407	42656	E0458	25414
E0204	15221	E0255	11546	E0306	65124	E0357	42562	E0408	51322	E0459	65456
E0205	43224	E0256	46462	E0307	63255	E0358	26133	E0409	34334	E0460	63142
E0206	61555	E0257	12233	E0308	12311	E0359	54156	E0410	14615	E0461	53243
E0207	22411	E0258	41646	E0309	51654	E0360	45622	E0411	15341	E0462	11656
E0208	53424	E0259	32622	E0310	13655	E0361	15213	E0412	64334	E0463	66242
E0209	45355	E0260	45213	E0311	41361	E0362	12646	E0413	45435	E0464	12143
E0210	44361	E0261	32546	E0312	11164	E0363	61232	E0414	16141	E0465	26256
E0211	46554	E0262	44622	E0313	53665	E0364	36113	E0415	62234	E0466	65442
E0212	36665	E0263	31213	E0314	13261	E0365	64316	E0416	44235	E0467	53143
E0213	33361	E0264	14356	E0315	12164	E0366	53522	E0417	22141	E0468	41456
E0214	53654	E0265	22522	E0316	12665	E0367	21313	E0418	16234	E0469	31442
E0215	31665	E0266	34413	E0317	11561	E0368	53616	E0419	14335	E0470	32533
E0216	13161	E0267	43556	E0318	13554	E0369	21622	E0420	43141	E0471	31446
E0217	44264	E0268	66422	E0319	56565	E0370	62113	E0421	64134	E0472	13442
E0218	52665	E0269	63213	E0320	31461	E0371	56665	E0422	34635	E0473	12343
E0219	51561	E0270	53216	E0321	56313	E0372	65461	E0423	24341	E0474	62546



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E0475	64632	E0526	63535	E0577	56143	E0628	26254	E0679	53252	E0730	54346
E0476	41633	E0527	11141	E0578	33646	E0629	12425	E0680	22644	E0731	13642
E0477	52646	E0528	32434	E0579	42342	E0630	11152	E0681	36425	E0732	31443
E0478	35242	E0529	33335	E0580	54243	E0631	12633	E0682	45511	E0733	56446
E0479	34633	E0530	34241	E0581	56646	E0632	43156	E0683	54354	E0734	16352
E0480	33546	E0531	24534	E0582	61242	E0633	31252	E0684	13425	E0735	65143
E0481	26442	E0532	41435	E0583	63343	E0634	24143	E0685	44121	E0736	61546
E0482	25243	E0533	15141	E0584	35156	E0635	51546	E0686	65254	E0737	62252
E0483	54646	E0534	55434	E0585	65242	E0636	24452	E0687	51425	E0738	62143
E0484	46142	E0535	24535	E0586	21243	E0637	45143	E0688	34321	E0739	42256
E0485	15243	E0536	52221	E0587	12256	E0638	13646	E0689	44154	E0740	33452
E0486	36646	E0537	54334	E0588	32142	E0639	35152	E0690	43135	E0741	44533
E0487	52142	E0538	15533	E0589	23143	E0640	25143	E0691	45121	E0742	55646
E0488	13343	E0539	16121	E0590	65546	E0641	51446	E0692	51644	E0743	41552
E0489	33156	E0540	26434	E0591	22442	E0642	52262	E0693	53345	E0744	32553
E0490	21442	E0541	46435	E0592	61443	E0643	32653	E0694	26611	E0745	21546
E0491	55633	E0542	65121	E0593	32156	E0644	26346	E0695	36254	E0746	32162
E0492	46546	E0543	14334	E0594	56442	E0645	34262	E0696	35245	E0747	44163
E0493	34632	E0544	25535	E0595	55143	E0646	12553	E0697	12321	E0748	36346
E0494	41243	E0545	51121	E0596	13546	E0647	12546	E0698	66544	E0749	33652
E0495	12156	E0546	11434	E0597	54412	E0648	33262	E0699	26445	E0750	46353
E0496	44512	E0547	42635	E0598	52533	E0649	54653	E0700	24321	E0751	16633
E0497	66343	E0548	33611	E0599	23256	E0650	32646	E0701	35321	E0752	11256
E0498	15446	E0549	62634	E0600	33312	E0651	41156	E0702	46334	E0753	53312
E0499	31412	E0550	65435	E0601	52134	E0652	64512	E0703	42535	E0754	43533
E0500	45243	E0551	44415	E0602	62435	E0653	56533	E0704	21611	E0755	25646
E0501	52563	E0552	46531	E0603	21321	E0654	15546	E0705	46234	E0756	52412
E0502	34456	E0553	66214	E0604	62334	E0655	44312	E0706	22435	E0757	63143
E0503	22612	E0554	55315	E0605	11535	E0656	11243	E0707	25321	E0758	65346
E0504	32363	E0555	24441	E0606	22121	E0657	24546	E0708	26234	E0759	65412
E0505	53656	E0556	64314	E0607	64534	E0658	12412	E0709	21435	E0760	16533
E0506	13122	E0557	53415	E0608	45635	E0659	51143	E0710	43321	E0761	43446
E0507	33663	E0558	15242	E0609	62221	E0660	22446	E0711	52254	E0762	26312
E0508	56256	E0559	53463	E0610	64154	E0661	66412	E0712	43145	E0763	46243
E0509	13441	E0560	35256	E0611	56535	E0662	32343	E0713	26121	E0764	56156
E0510	32234	E0561	11542	E0612	14321	E0663	44156	E0714	22254	E0765	32312
E0511	15435	E0562	32143	E0613	34154	E0664	31212	E0715	63525	E0766	26243
E0512	14141	E0563	55656	E0614	61635	E0665	36533	E0716	61121	E0767	36446
E0513	51434	E0564	64342	E0615	23611	E0666	31256	E0717	46254	E0768	15212
E0514	45235	E0565	16143	E0616	51254	E0667	65212	E0718	21425	E0769	11443
E0515	64241	E0566	33456	E0617	25325	E0668	62343	E0719	34121	E0770	13156
E0516	62434	E0567	66442	E0618	46511	E0669	31546	E0720	26644	E0771	34212
E0517	56235	E0568	65533	E0619	42454	E0670	36112	E0721	42325	E0772	21143
E0518	42341	E0569	35546	E0620	22425	E0671	31343	E0722	52321	E0773	32256
E0519	35434	E0570	52242	E0621	63121	E0672	16446	E0723	62254	E0774	21352
E0520	35235	E0571	43633	E0622	12454	E0673	11212	E0724	21625	E0775	55243
E0521	26141	E0572	22646	E0623	25425	E0674	31143	E0725	56121	E0776	44546
E0522	36234	E0573	55632	E0624	65511	E0675	53546	E0726	12254	E0777	53452
E0523	52335	E0574	14243	E0625	14354	E0676	35352	E0727	16425	E0778	61243
E0524	53241	E0575	63156	E0626	41425	E0677	25633	E0728	25611	E0779	13446
E0525	16434	E0576	12542	E0627	53221	E0678	42646	E0729	55254	E0780	54321



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E0781	46154	E0832	15263	E0883	16451	E0934	42626	E0985	13154	E1036	62216
E0782	32625	E0833	53626	E0884	11454	E0935	42652	E0986	61665	E1037	25162
E0783	34221	E0834	31162	E0885	45665	E0936	16653	E0987	12451	E1038	21454
E0784	53354	E0835	65163	E0886	14551	E0937	55156	E0988	31644	E1039	56345
E0785	24525	E0836	34526	E0887	45454	E0938	56452	E0989	41665	E1040	66451
E0786	53321	E0837	34652	E0888	26665	E0939	62453	E0990	33551	E1041	41154
E0787	55644	E0838	36263	E0889	53551	E0940	63646	E0991	62354	E1042	42345
E0788	44525	E0839	55446	E0890	16454	E0941	45162	E0992	55665	E1043	42351
E0789	35511	E0840	63652	E0891	64665	E0942	65263	E0993	63351	E1044	16154
E0790	63154	E0841	24653	E0892	25451	E0943	12446	E0994	43154	E1045	66345
E0791	16645	E0842	63346	E0893	36154	E0944	22362	E0995	46565	E1046	53131
E0792	34611	E0843	12362	E0894	21665	E0945	11653	E0996	13551	E1047	56254
E0793	35644	E0844	15453	E0895	51451	E0946	54546	E0997	16544	E1048	25245
E0794	61545	E0845	14546	E0896	64254	E0947	22162	E0998	66565	E1049	13621
E0795	31321	E0846	61162	E0897	25665	E0948	22163	E0999	65451	E1050	61444
E0796	11254	E0847	65353	E0898	54451	E0949	16546	E1000	31254	E1051	62363
E0797	26245	E0848	53346	E0899	63254	E0950	16162	E1001	26251	E1052	62646
E0798	11321	E0849	63552	E0900	36565	E0951	33221	E1002	22154	E1053	24652
E0799	24154	E0850	42663	E0901	61156	E0952	32354	E1003	16565	E1054	34463
E0800	65245	E0851	66254	E0902	36652	E0953	15445	E1004	21451	E1055	22116
E0801	36362	E0852	16445	E0903	11263	E0954	31221	E1005	41454	E1056	11162
E0802	36163	E0853	36221	E0904	31126	E0955	65452	E1006	16145	E1057	54463
E0803	15126	E0854	53154	E0905	21555	E0956	26453	E1007	64551	E1058	65116
E0804	31362	E0855	63545	E0906	52121	E0957	13616	E1008	65644	E1059	36262
E0805	51553	E0856	23226	E0907	56644	E0958	22552	E1009	46145	E1060	55463
E0806	42154	E0857	32552	E0908	11665	E0959	16644	E1010	13651	E1061	62316
E0807	13665	E0858	51653	E0909	62652	E0960	63665	E1011	52454	E1062	35162
E0808	61321	E0859	32665	E0910	55353	E0961	23221	E1012	24245	E1063	16463
E0809	33553	E0860	51321	E0911	46616	E0962	33354	E1013	23451	E1064	24116
E0810	34326	E0861	25644	E0912	55162	E0963	23121	E1014	54154	E1065	12552
E0811	51362	E0862	54116	E0913	55126	E0964	14644	E1015	64245	E1066	56563
E0812	54453	E0863	22454	E0914	35552	E0965	65665	E1016	65251	E1067	41116
E0813	64552	E0864	51665	E0915	34453	E0966	64121	E1017	61644	E1068	34362
E0814	31653	E0865	36511	E0916	61226	E0967	31454	E1018	35445	E1069	55363
E0815	54126	E0866	65154	E0917	54162	E0968	62665	E1019	31651	E1070	35316
E0816	63162	E0867	21216	E0918	22263	E0969	62161	E1020	44254	E1071	23266
E0817	61263	E0868	55611	E0919	33516	E0970	42354	E1021	11245	E1072	14463
E0818	52226	E0869	42254	E0920	12162	E0971	16665	E1022	62551	E1073	46345
E0819	14262	E0870	35665	E0921	63553	E0972	22161	E1023	23463	E1074	21161
E0820	63163	E0871	55551	E0922	11126	E0973	62454	E1024	41316	E1075	62644
E0821	55616	E0872	61454	E0923	36552	E0974	46665	E1025	26552	E1076	32345
E0822	23652	E0873	14116	E0924	63653	E0975	46451	E1026	53663	E1077	46651
E0823	31263	E0874	62651	E0925	12516	E0976	63354	E1027	34116	E1078	32454
E0824	12616	E0875	61254	E0926	26162	E0977	23665	E1028	16552	E1079	13345
E0825	51552	E0876	34665	E0927	13163	E0978	42651	E1029	42563	E1080	56651
E0826	45553	E0877	44551	E0928	43626	E0979	23154	E1030	53116	E1081	56544
E0827	45526	E0878	15254	E0929	32262	E0980	43665	E1031	45652	E1082	36345
E0828	24262	E0879	33665	E0930	53553	E0981	24551	E1032	51363	E1083	21551
E0829	14263	E0880	25551	E0931	21526	E0982	34554	E1033	64116	E1084	61154
E0830	63526	E0881	45254	E0932	36162	E0983	22665	E1034	12652	E1085	12345
E0831	51162	E0882	42665	E0933	35263	E0984	34551	E1035	15363	E1086	61651



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E1087	66154	E1138	56351	E1189	52216	E1240	44345	E1291	63663	E1342	33621
E1088	42216	E1139	66354	E1190	31652	E1241	36321	E1292	51316	E1343	42244
E1089	21552	E1140	55245	E1191	61563	E1242	32144	E1293	33162	E1344	62445
E1090	35463	E1141	11451	E1192	52116	E1243	24545	E1294	34563	E1345	44521
E1091	51216	E1142	34644	E1193	23552	E1244	23421	E1295	55316	E1346	46344
E1092	46452	E1143	32545	E1194	43463	E1245	34144	E1296	62552	E1347	62245
E1093	35363	E1144	32621	E1195	11216	E1246	56445	E1297	43563	E1348	64521
E1094	23116	E1145	31154	E1196	55362	E1247	46521	E1298	31516	E1349	26344
E1095	24162	E1146	66145	E1197	21463	E1248	56344	E1299	53262	E1350	45445
E1096	42363	E1147	24131	E1198	13216	E1249	36445	E1300	24563	E1351	56416
E1097	33216	E1148	35254	E1199	22652	E1250	15421	E1301	51244	E1352	14162
E1098	56652	E1149	23345	E1200	52363	E1251	25452	E1302	14345	E1353	23563
E1099	15663	E1150	41521	E1201	26345	E1252	63363	E1303	56621	E1354	46116
E1100	24316	E1151	53652	E1202	62521	E1253	43316	E1304	61244	E1355	44552
E1101	15665	E1152	45363	E1203	15244	E1254	13652	E1305	51245	E1356	35563
E1102	13351	E1153	61646	E1204	15245	E1255	14663	E1306	34521	E1357	42116
E1103	45644	E1154	65162	E1205	56421	E1256	41216	E1307	21244	E1358	43552
E1104	14665	E1155	26363	E1206	35144	E1257	43652	E1308	22345	E1359	24463
E1105	36251	E1156	21316	E1207	14245	E1258	26563	E1309	53421	E1360	32116
E1106	62154	E1157	32362	E1208	12521	E1259	35216	E1310	62144	E1361	34552
E1107	41245	E1158	64463	E1209	52344	E1260	45452	E1311	11445	E1362	21563
E1108	33651	E1159	51116	E1210	43345	E1261	31563	E1312	65621	E1363	32216
E1109	56154	E1160	11362	E1211	33421	E1262	44316	E1313	65244	E1364	12262
E1110	16245	E1161	11463	E1212	16634	E1263	24552	E1314	32445	E1365	52663
E1111	32651	E1162	45116	E1213	31445	E1264	22563	E1315	35621	E1366	65316
E1112	56454	E1163	14652	E1214	66421	E1265	54216	E1316	34344	E1367	41652
E1113	22245	E1164	16363	E1215	62344	E1266	15362	E1317	23545	E1368	36563
E1114	22651	E1165	61316	E1216	42445	E1267	66363	E1318	24521	E1369	66216
E1115	42644	E1166	31552	E1217	52621	E1268	56216	E1319	26244	E1370	34162
E1116	52345	E1167	54663	E1218	25244	E1269	15162	E1320	34245	E1371	11563
E1117	36651	E1168	63416	E1219	21445	E1270	65363	E1321	15621	E1372	65216
E1118	16254	E1169	54362	E1220	11521	E1271	63116	E1322	61344	E1373	56262
E1119	62345	E1170	32563	E1221	43144	E1272	21652	E1323	65445	E1374	65663
E1120	35251	E1171	15116	E1222	16345	E1273	45563	E1324	42621	E1375	22216
E1121	51254	E1172	52551	E1223	23621	E1274	14316	E1325	11244	E1376	51652
E1122	21245	E1173	23354	E1224	64344	E1275	26452	E1326	26145	E1377	65563
E1123	65262	E1174	12445	E1225	12245	E1276	13463	E1327	26621	E1378	12116
E1124	25463	E1175	12651	E1226	41621	E1277	45216	E1328	64244	E1379	22262
E1125	35116	E1176	12644	E1227	13344	E1278	35452	E1329	56245	E1380	43363
E1126	65362	E1177	51445	E1228	25445	E1279	14563	E1330	32521	E1381	25216
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E1128	43116	E1179	46644	E1230	23344	E1281	16452	E1332	56145	E1383	36363
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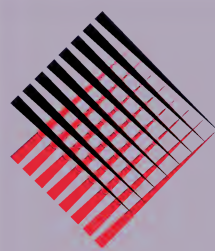
connectorized Smart Pac wires using wire nuts provided with the unit. (See illustration 2.)

The H.E.S. Smart Pac is one small step below the considerably more expensive regulated power supply. The only additional component needed is a 12 or 24 volt transformer. Keep in mind that a 12 volt strike can be powered by a Smart Pac with a 12 or 24 volt transformer but a 24 volt strike still needs a 24 volt transformer.

Why should the H.E.S. Smart Pac be used in every installation of an H.E.S. electric strike?

First, it protects the strike from heat build up if the strike should be powered continuously, either intentionally or accidentally. Second, most applications require a minimum on time to ensure that the user has ample opportunity to push the door open once the strike is energized. Third, many power supplies currently available in the security or access control industry aren't quite what there advertised to be. Typically, a so called 12 volt supply really produces over 13 volts while a supply specified as 24 volts may run as high as 32 volts. The H.E.S. Smart Pac guarantees that only the correct voltage will be applied to the strike thus minimizing the risk of burn out, strike failure and unnecessary call-backs.

Finally, keep in mind that the H.E.S. Smart Pac is designed to work with H.E.S. strikes. We cannot guarantee the Smart Pac or what might happen to someone else's product if you attempt to use them together. However, if you decide to use an H.E.S. Smart Pac with your next installation of an H.E.S. 1000 or 7000 series electric strike, then you will be the "Smart" one. **TNL**



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TEST DRIVE



Taking Industry Products for a Spin Around the Block

THE NATIONAL LOCKSMITH GUIDE TO: STEERING COLUMN SERVICE

PRODUCT: *The National Locksmith Guide To: Steering Column Service.* Written by Tom Mazzone and Tom Seroogy, and published by *The National Locksmith*. Available from *The National Locksmith* or authorized distributors. Suggested list price is \$95 or free with new NLAA membership or NLAA renewal. For more information, contact *The National Locksmith* at (708) 837-2044.

PRODUCT DESCRIPTION: *The National Locksmith Guide To: Steering Column Service*, is a 250 plus page manual covering General Motors steering column teardown. It is not only timely, it is probably one of the most accurate and complete manuals currently available to the locksmith. Going beyond the manual, however, is a 110 question test designed around the manual.

FRIENDLINESS:

The manual is extremely easy to use. Divided into five separate and well defined sections, the manual lays out in a logical manner the steps necessary to service the various types of domestic GM columns in the field today. Most noteworthy are the brief histories given of each column and their application, the step-by-step teardown of each column, and the extremely large and well placed photographs used to illustrate each step.

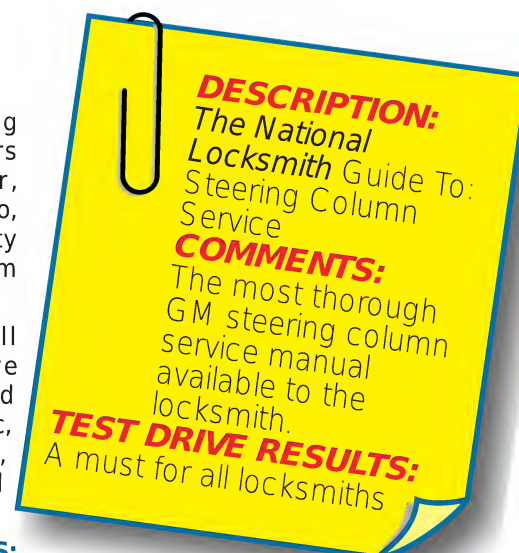
FEATURES: While a manual is a manual, this particular book excels in two ways. First, it includes a section on Dangers & Warnings. This chapter delves deep into some of the idiosyncrasies of the GM column as well as some of the Does-And-Don'ts for the lock-

smith. For example; the collapsing GM steering shaft, popped retainers vs. broken rack and sector gear, prevent locking up a Delco-LOC radio, and, believe it or not, driveability problems that can occur from servicing a column.

The second feature is that all domestic (Saginaw) columns are covered in depth: Standard Round and Tilt Round Columns, Tilt/Telescopic, Tilt and NonTilt Square Columns, MATS, Alpha Technologies, '94 and '95 10-Cut, Airbags and VATS.

COMMENTS AND SUGGESTIONS:

There's no question that this manual is one of the most complete GM steering column manuals ever written



for the locksmith. A simple look at the test indicates a thorough knowledge and inside track on automobile servicing. The test requires not only that the correct answer be chosen, but that the correct page number for the answer be referenced. This is typical for tests administered by General Motors' Service Technology Group (STG). STG is the official training center for training GM technicians.

If there is anything lacking in this manual, it is the same in-depth service instructions for Ford and Chrysler, plus a more thorough coverage on GM rack & sector replacement, VATS diagnostics and the new MRD system. These sections, as I've been told, are currently in the works and will be available as updates.

CONCLUSION: For the beginner or the master locksmith, *The National Locksmith Guide To: Servicing Steering Columns* is one manual that can't be passed by. The test in itself makes it worth every penny spent on it.

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